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Color TV from coast-to-coast.

Sports events televised by helicopter.

Television instruction in most school rooms.

Thirty-inch screens cheaper than today's smaller ones.

Two and three receivers to a home—both black and white and color.

More than 1,000 TV stations in operation.

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THE JOURNAL OF THE TELEPHONE INDUSTRY

February 3, 1951

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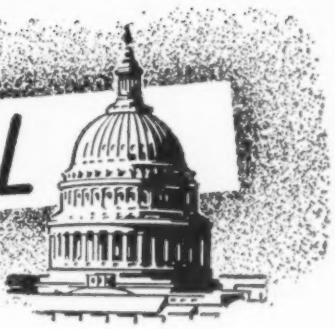
IN THE NATION'S CAPITAL



BY FRANCIS X. WELCH
WASHINGTON EDITOR

FCC inquiry into interstate toll rates expected to bring determined opposition from state regulatory commissions. Reviews study made by Commerce Department on inflation and national income.

Those Threatened Bell Toll Cuts

THERE will be a hot time in the old town of Washington next Apr. 16 if some of the state regulatory commissions have their way about the latest Federal Communications Commission (FCC) move to cut Bell interstate toll rates. As stated in this magazine last week, the FCC has ordered a hearing for Apr. 16 to determine whether the interstate tolls should be reduced in view of the alleged fact that Bell System earnings are accruing at the rate of more than 7 per cent on reported net book cost of interstate plant. Bell companies have been given until Mar. 23 to give reasons why interim reductions should not be made.

What burns some of the state commissions is the fact that the FCC announcement only presents one side of the picture. The other side of the picture is a proposition upon which the FCC and the state commissions were supposed to be working, in an effort to work out some sort of regulatory adjustment that would keep interstate telephone earnings from growing at the expense of intrastate earnings. It is the state commissions which have the responsibility for regulating the intrastate telephone rates. The trend on that level has been upward, as we all know, for the past three years.

Thus, while earnings have been improving on the Long Lines Division, operating companies have not been doing so well, and have had to seek repeated rate increases on local exchange business from state commissions. But a further cut in interstate long distance rates at this time would only increase the disparity between long distance tolls and intrastate toll rates—a disparity concerning which the state commissions already have registered complaints with the FCC.

Anticipating that the state commissions would have plenty to say about this situation, the FCC has made the latest Bell interstate toll proceeding "cooperative." The National Association of Railroad & Utilities Commissioners (NARUC) was invited, along with such other individual state commissions as wanted to make special appearance. The NARUC was asked, pursuant to a "cooperative" agreement in effect between the FCC and the state association group, to designate "cooperating state commissioners" to sit with the FCC telephone committee at the hearings scheduled to begin on Apr. 16, as already stated.

NARUC President George H. Flagg (Oregon) had not yet appointed the participating state members as these lines were written.

The FCC order claims that, on the basis of reported book cost, earnings on interstate Bell telephone plant and foreign service are running at the rate of more than 7 per cent after all taxes and with depreciation for amortization reserves deducted. Specifically, the order sets forth the following break down of Bell System earnings for the first ten months of 1950 compared with the calendar year 1949:

	Calendar Year 1949	*First 10 Months 1950*
Book cost of telephone plant (account 100.1, 3, 4)	$1,714,510,272	$1,860,979,169
Depreciation and amortization reserves	568,017,253	616,542,399
Net book cost of telephone plant	$1,146,493,019	$1,244,436,770
Operating revenues	$ 562,906,651	522,618,844
Operating revenue deductions	460,975,217	401,596,976
Federal income taxes	32,209,776	45,143,070
Net amount available for return	$ 69,721,658	$ 75,878,798
Ratio of net amount available for return to net book cost of telephone plant	6.08%	7.32%

One obvious correction that would have to be made in the foregoing rosy outlook for Bell interstate earnings would be in the matter of tax adjustment.

Assuming that the FCC claim of 7.32 per cent return (for the first 10 months of 1950) is accurate, the Bell System would only earn 6.81 per cent at the same rates and under the same conditions of service in view of the 47 per cent federal income tax.

Aside from all that, however, the factor which is worrying the state commissions most of all, is the peculiar and probably unavoidable economic threat in interstate telephone business as compared with intrastate telephone business. Not only has the technical efficiency of handling interstate calls progressed to a point where local operations cannot fairly be compared, there is also the tremendous volume of long-haul toll business which has been piling up the tolls at an unprecedented rate. But obviously it would be impossible for the telephone business to sell its service on a "tie-in" basis whereby the proportion of interstate business could be kept in a more or less stabilized relation with the development of intrastate business.

The fact remains that local exchange business, which is the beginning and end of all telephone business, has (to some extent) been developing into a sort of "loss leader" for the promotion of the interstate toll business. It is this factor which some of the state commissioners think should be taken more into account before arbitrarily hacking away at toll earnings, without regard to the balances of the telephone rate structure. So far this argument has not made much impression on the federal regulatory accountants, who go through their ritual of stringing their

statistical beads first on this side, then on that side, even though the heavens were to fall.

The state commissions, through a special committee of the NARUC, have been trying to work out some formula for adjusting the allocation of interstate and intrastate revenues in favor of the latter. Some plan for adjusting interstate earnings for the benefit of local operation would take the pressure off state commissions for continued telephone rate increases.

This does not mean that the FCC is willing to go along with any such revision. Its past policy has been to make interstate toll rate cuts whenever it could arrange them with the Bell System, regardless of any disparity with intrastate rate structures. But there is enough rising clamor from the state commissions to put the FCC at least in the mood to listen to the arguments on all sides before finally acting on its latest "show cause" order to the Bell System.

This reviewer is inclined to believe that FCC and the Bell will work out some kind of arrangement, just as they have always done in the past. But the basic problem goes on. It is a problem that needs clear heads and a fresh approach. The fact that the local telephone exchange originates and terminates all toll business would seem entitled to greater weight. The strictly statistical approach in dealing with a dynamic economic phenomenon of this sort is about as logical as saying: If 10 men can build a house in 10 days, 20 men could build it in five days, 40 men could build it in two and a half days, and 80 men could build it in one and a quarter days, and so on until we find thousands of workers all over the place building a house in a minute. It is mathematically sound; but it just doesn't make sense.

"Sorry, he's tied up."

Have We Been Eating Seed Corn?

The Department of Commerce has come up with a thought-provoking and altogether courageous dollar study to take inflation out of our national income figure. The department decided to express all national income in terms of the dollar of a single year. The dollar selected was 1939. We get some interesting results in the restatement of the increases in our national productivity over the past two decades or more.

Heretofore, federal officials have proudly pointed to a dollar increase of national productivity in the order of 170 per cent since 1929 ($103,800,000,000 in 1929 and $280,000,000,000 in 1950). It sounds like an almost fantastical rate of progress. And of course you know who is perfectly willing to take all of the bows, by way of inference. The address is Washington, D. C. But when we use the latest adjustment of the Commerce Department and express national productivity in terms of 1929 dollars—we get an increase (from 1929 to 1950) of only 78 per cent. That is still pretty good. But it is a long way from 170 per cent.

But we read on down the column. We come across even more significant developments. What about our rate of investment? In a capitalistic economy such as our own, the rate of investment is fundamental. It is the basis upon which we go ahead, stand still, or fall back. In 1929, the investors of the United States laid out $14,900,000,000. But in 1949 we have an investment of $17,000,000,000—again in terms of 1939 dollars—a gain of only 20 per cent. So while our productivity in terms of investment dollar has increased 78 per cent, the investment in plant, which is responsible for such productivity, has been only 20 per cent. There are plenty of reasons—a depression, a world war, and now further dislocation of long-range plant investment for the present emergency.

But let us go back and look at some more figures. This time the figures on consumption. Back in 1929, consumers laid out $62,200,000,000. In 1949 they laid out $102,000,000,000—both figures expressed in 1939 dollars. The increase is 64 per cent. And what about government spending? Government spending was largely for consumption or at least it could not be stated in terms of plant investment. Government spending went from $7,900,000,000 to $22,000,000,000—a jump of 175 per cent.

What do all these figures mean? They mean that in the last 20 years our consumption has gone up nearly four times as fast as our investment. Maybe that is a good thing, in the light of some modern economic theories which stress the values of consumption and consumer goods. But the disturbing fact is that we have not been able to add to our production plant at the same rate which we did in the earlier years of our history, when we were accumulating our normal rate of growth. Investment has become less attractive over the long range. There is more than a suspicion that we have been eating some of our seed corn.

(Please turn to page 30)

HIGH SPEED LINE
Insulation Testing

By B. C. BURDEN
Member
USITA Plant Committee

Mr. Burden is chairman of the United States Independent Telephone Association's Plant Sub-Committee on Transmission, Testing and Inductive Interference and made this report before the association's annual convention.

THIS report discusses a relatively new exchange plant testing procedure which is made possible through the use of "high speed line insulation test equipment." These new practices and equipment are now in practical use and experience already indicates they are very successful and will become a permanent part of our testing techniques. Their purpose is to improve service and reduce plant maintenance costs.

Essentially this new equipment can be used to test rapidly, under both dry and wet weather conditions, all of the subscribers' lines in a large office. These tests, which are made periodically, enable the detection of potential faults before they cause service impairment or interruption.

Two general types of high speed line insulation test equipment are available, viz:

(1) Manual electronic units which require that a test shoe connected to the test unit be moved manually over the subscriber's line terminals on the IDF. An audible and visual signal is given by the unit when a defective line is encountered, i.e., a line having leakage higher than some maximum established value.

(2) Automatic testing equipment which will, without any human aid other than operation of a "start" key, test every line in an office for leakage. The equipment automatically stops when a defective line is encountered.

This report is based on an analysis of data collected from both Bell System and Independent sources. No attempt has been made to give detailed circuit data, but rather to explain the fundamental theory, general features, and field use of this new equipment and testing procedures it makes possible.

Effects of Line Leakage on Telephone Service

As a proper background for the discussion to follow, a brief statement of the effect of leakage on telephone service is in order. The term "leakage" as used in this report refers to "insulation resistance" values lower than normal for a given type of telephone plant.

Excessive leakage may affect telephone service in any or all of the following ways:

(1) Cause subscriber line and trunk equipment to operate falsely thus requiring the affected equipment to be temporarily removed from service, i.e., disconnected from battery.

(2) Cause subscriber line and trunk equipment to be erratic and unreliable in operation, i.e., marginal in performance.

(3) Create objectionable noise or crosstalk on exchange and toll circuits.

Advantages of Preventive Insulation Resistance Testing Procedures

The location and correction of abnormal leakage on lines and trunks may be accomplished in connection with reported or observed faults, or as a result of periodic insulation resistance tests made on all lines in an office with the new high speed testing equipment.

The advantages of detecting, locating and correcting leakage conditions in subscribers' lines and equipment *before rather than after* the leakage condition has resulted in service impairment or interruption are as follows:

(1) Results in improved subscriber service.

(2) Insures longer plant life.

(3) Spreads maintenance work by minimizing peak trouble loads which often prevail during wet stormy weather.

(4) Minimizes the necessity for troublemen operating on an overtime basis.

Periodic leakage tests of all subscriber lines will uncover many potential faults while they are still in the embryo stage. These incipient trouble conditions, if allowed to come to full bloom, may in the case of drop or inside wiring, disrupt service to a single subscriber. In the case of cable, service to a substantial number of subscribers may be completely interrupted or substantially impaired.

The principal plant defects which can be uncovered by these periodic over-all high speed insulation resistance tests are:

(1) Sheath opening in aerial and U. G. cable.

(2) Defective and worn insulation in subscribers' drops.

(3) Partially shorted capacitors in subscribers' telephones.

(4) Defective inside wiring on the subscribers' premises.

(5) Dirty arrestor blocks at subscribers' stations and in protected cable terminals.

(6) Bad tree conditions affecting open wire and drop wire plant.

(7) Leaky jumper connections on terminal and junction poles.

Usual Insulation Resistance Testing Methods

The insulation resistance (leakage) of telephone circuits is normally measured with a dc voltmeter and battery in series. The magnitude of leakage corresponding to any voltmeter deflection is expressed in ohms or megohms. The resistance in ohms for any deflection of the voltmeter is equal to $X = (\frac{E}{D} - 1)\ R$, where X equals the unknown resistance in ohms; E equals the test battery voltage in volts; D equals the voltmeter deflection in volts; R equals the voltmeter resistance in ohms.

The 100-volt, 100,000-ohm voltmeter, when used with a 100-volt test battery, has a maximum upper range of about 10,000,000 ohms.

Three Types of Leakage

We are normally concerned with three types of leakage in dealing with subscribers' lines, viz:

(1) Leakage between the two sides of the same telephone circuit (shorts).

(2) Leakage between either or both sides of the same circuit to ground (grounds).

(3) Leakage between the sides of different telephone circuits (crosses).

The wire chief's test voltmeter can be used to test for line leakage by inserting a test shoe (or test clips) on the main frame protector or on the cable terminals (at MDF) of an individual line. Connection to a subscriber's line can also be made by means of

test connectors in dial offices, and test plugs in manual offices.

Disadvantage of Usual Testing Method

It is, of course, feasible to test every subscriber's line in an office by simply checking one line at a time from the wire chief's test panel. This method of making an over-all check has these disadvantages, viz:

(1) It requires too much labor expense.

(2) The time required is so great that it does not permit a check to be started and completed on all or on a large group of lines during abnormal weather, as for example, a heavy wet snow. It is under such adverse conditions that incipient faults show up.

(3) The voltmeter-battery test when made from the office will not show whether trouble is in the cable or in the open wire-drop wire plant. Use of the voltmeter without battery will in some but not all cases indicate whether trouble is in the cable or in the plant beyond the cable.

As will later be shown, it is feasible to provide a fairly positive indication of whether trouble is in the cable plant or beyond by means of a foreign potential test made with the high speed subscribers' line insulation resistance testing unit.

High Speed Line Insulation Test Set (Electronic Type)

A recent development in leakage detecting equipment is the electronic type of high speed insulation test unit. It consists essentially of an assembly of relays, vacuum tubes, resistors, alarm lamps, buzzers, batteries, and a special test shoe.

The test unit is rapidly connected to successive subscribers' lines by moving a special test shoe over subscribers' line terminals (tip, ring and sleeve) preferably on the IDF. Lines having excessive leakage (higher than some predetermined maximum) are automatically detected and the testman is signalled by a colored lamp and a buzzer.

The testman stops moving the test shoe across the line terminals when an alarm signal is received. He next verifies the test, then makes a record of the line which shows excessive leakage. This record is later turned over to the maintenance forces for checking on the chief's test panel and subsequent action by plant maintenance groups.

These electronic units are designed for use in either dial or manual offices. Three basic tests can be made with them, viz: Tests for shorts, tests for grounds and tests for foreign voltages, i.e., crosses between CB lines. *The device tests for only one type of fault for a given setting of the switches.*

For example, a large group of lines (possibly all in the office) would be

Fig. 1. View of Bell System line insulation tesing unit.

tested first for foreign voltage. Then the switches would be changed and a test made for shorts or short grounds.

In addition to the rapidity with which a large number of lines can be tested for shorts and grounds, the electronic insulation tester also has the special merit (by means of its FEMF test) of being able to (in most cases) distinguish between leakage which occurs in the cable plant and leakage in the open wire or drop wire or subscriber's instrument.

Principal Features of the Electronic Unit

The electronic test units which have been under development the past two years are now being used by a number of Bell System companies and by at least one or two large Independent companies. A top view of the Bell System unit is shown in *Fig. 1.* Some of the principal fetures of the unit are:

(1) Contact with the subscriber's line under test is made by sliding a special test shoe equipped with three contacting springs over tip, ring and sleeve terminals on the subscriber's IDF.

(2) The shoe is moved at a speed from as low as two and as high as 10 lines per second. It is moved slowest for FEMF (foreign voltage) tests and highest for leakage tests made during wet weather conditions when leakage is a maximum.

(3) The unit can be set to make any one of three basic types of tests, i.e., "short test," "short ground test," and "FEMF" test. Only one kind of test can be made at a time; i.e., the unit does not automatically check for all three types of faults as the test shoe is moved across the terminals.

(4) It operates as follows: As the test shoe contacts encounter a line with excessive leakage, a buzzer sounds and a lamp lights. Relays lock up these signals. The testman stops the shoe, or if he has moved by the defective line, he releases the "defect signal" by pressing a release button on the shoe. The shoe is then moved back a few terminals until the defective line is encountered and the defect lamp and buzzer again operate. The defective line number, the type of fault, and the color of the operated defect lamp is then recorded on a special form. The defect signal is then released by pressing the release button on the shoe and the tests continue.

(5) The set has a maximum insulation resistance testing range of 6,300,000 ohms and a minimum range of zero ohms.

(6) The sensitivity of the set can be set on various values of leakage resistance by means of switches. Four testing ranges are provided and in each of these ranges three lights (and corresponding buzzers) are used to show the magnitude of the leak detected.

The magnitude of the maximum leak which will operate one of the three signal lamps is as shown below:

Maximum Resistance Value Which Will Operate Defect Signal

Test Range	*Red*	*Yellow*	*Green*
A	43,000	67,000	150,000
B	260,000	400,000	900,000
C	900,000	1,400,000	3,200,000
D	1,800,000	2,800,000	6,300,000

(7) Except in the case of very low insulation resistance faults, only one lamp will light for a specific fault.

(8) The sleeve circuit of each line is automatically tested as the shoe makes contact with the line terminals. If the line is busy the test equipment is not connected through. If the line is not busy it is automatically connected to the test circuit and the sleeve made busy while the test show is in connection with the line terminals.

(9) A calibration circuit is provided for adjusting the electronic and battery circuits to insure the maximum insulation resistance values for each range will properly operate the signal lamps and buzzers.

(10) The emissive output of the detector and amplifier tubes used in the electronic circuit is checked by means of a dc milliammeter which can be switched into the plate circuit of either tube.

(11) When the test key FEMF is operated, the CO battery and ground is connected to the electronic circuit in such manner as to make the alarm circuit *sensitive only to leaks from CO battery (crosses between CB pairs)* and insensitive to shorts and grounds. This circuit feature enables the test unit to differentiate between defective cable pairs and faults on the plant beyond the cable terminal from which a subscriber's line feeds. A rough sketch of the test shoe used with the Bell System test unit is shown in Figure 2.

Theory of Electronic Portion of Test Circuit.

The sensitivity of the electronic line insulation test unit is obtained by use of a two tube resistance coupled amplifier.

A balanced biasing resistance net-

work and a 49.5 volt radio B battery are connected across the grid input circuit of the detector tube. This network places a normal negative bias of one volt on the detector tube. The network is adjustable and the sensitivity can be increased or decreased so as to give four separate testing ranges. The tip and ring test leads extending to the test shoe connect to the grid of the detector tube and to the negative side of the 49.5 volt battery. A simplified schematic is shown in Figure 3.

In operation, when testing for "shorts" or "short grounds," a portion of the grid input resistance network is shunted by any leakage path which may exist on the tested line.

The leakage path causes the current through the network to increase. This results in a higher voltage drop across the resistor which in turn places a higher negative potential on the grid of the detector tube. This reacts on the amplifier tube *causing an increase in output current in this tube.* This increase is proportional to the magnitude of the leakage path shunted across the tip and ring test leads.

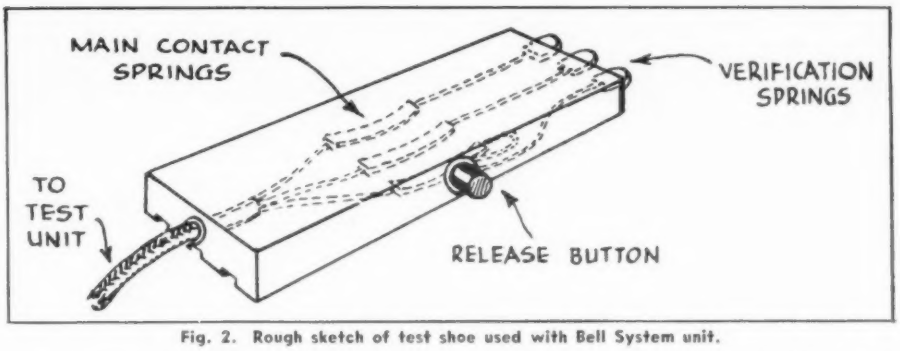


Fig. 2. Rough sketch of test shoe used with Bell System unit.

The increase in current in the amplifier tube, produced by the leakage path in the subscriber's line, operates one of the signal lamps and buzzers which are in series with the amplifier output circuit.

Action of Signal Circuit

Each of the lamps (and associated buzzers) are operated by a relay in the output of the amplifier tube. These relays lock up when operated and remain this way until released by pressing the release button located on the test shoe. The maximum leak resistance required to operate the red, green or yellow lamp for test range A is: Red —43,000 ohms; yellow—67,000 ohms; green—150,000 ohms.

Automatic Line Insulation Resistance Test Equipment

Equipment has been developed in recent years by an Independent manufacturer for automatically testing every subscriber's line in dial exchanges. This equipment operates without any action on the part of the testman except to set the equipment in operation and to record the numbers of those lines which lock up an alarm circuit indicating short or ground leakage above some normal value or foreign potential leakage between CB pairs.

Though not yet in common use, it has genuine merit because of the ease and rapidity with which all subscriber's lines in an exchange can be periodically tested for leakage, thus enabling the early detection of conditions which might later result in service impairment or interruption.

Like the manual electronic tester, it would offer the particular advantage of spreading the maintenance load and minimizing peak trouble pile-ups during wet stormy weather, with the further distinct advantage of automatic operation.

From an economic viewpoint, actual dollar savings should result from any equipment which anticipates trouble before it occurs. This saving results from reduced overtime requirements, correction of defective and potentially defective plant under favorable working conditions, and actual material savings resulting from the correction of imperfections in plant before complete breakdown and replacement is required.

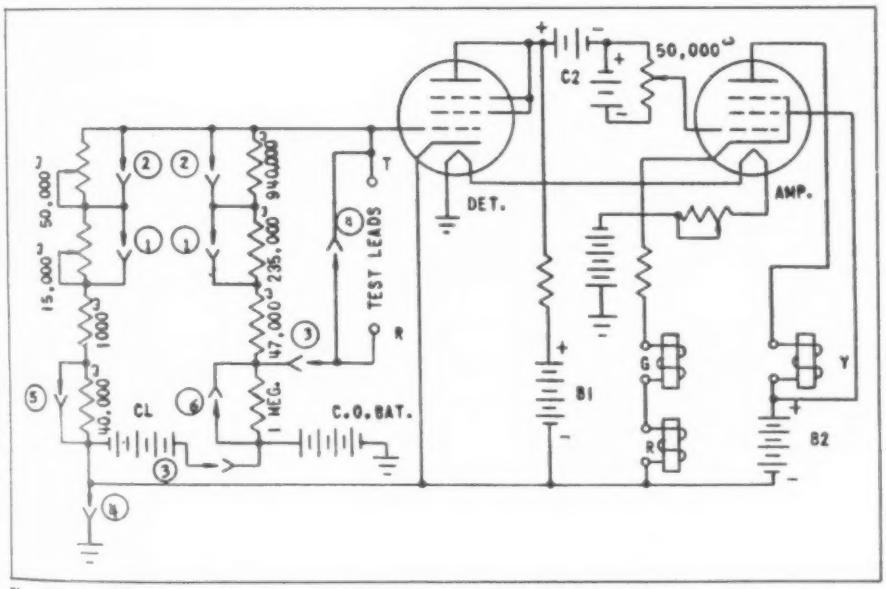


Fig. 3. Simplified schematic of electronic circuit used in Bell System line insulation test unit.

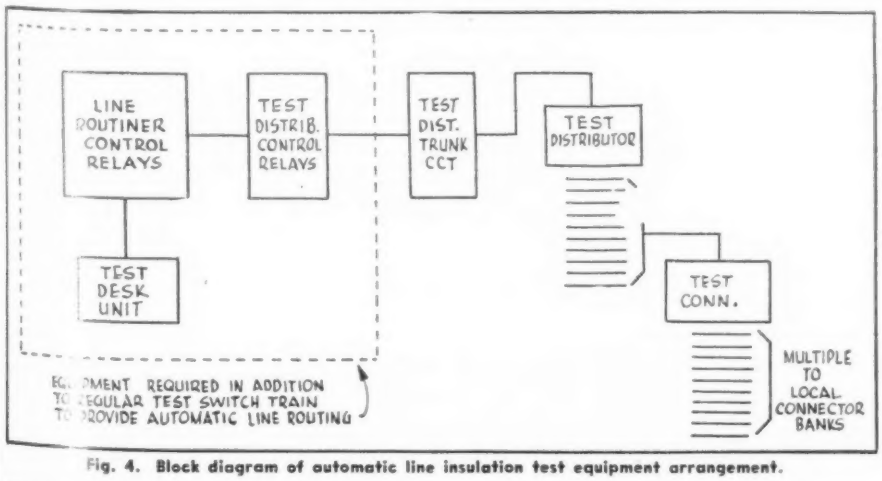

LINE ROUTINER CONTROL RELAYS
TEST DISTRIB. CONTROL RELAYS
TEST DIST. TRUNK CCT
TEST DISTRIBUTOR
TEST DESK UNIT
TEST CONN.
MULTIPLE TO LOCAL CONNECTOR BANKS
EQUIPMENT REQUIRED IN ADDITION TO REGULAR TEST SWITCH TRAIN TO PROVIDE AUTOMATIC LINE ROUTING

Fig. 4. Block diagram of automatic line insulation test equipment arrangement.

Features of Automatic Test Equipment

The automatic line insulation tester consists essentially of a test desk unit, an assembly of line routine control relays, an assembly of test distributor control relays plus the usual test distributor and test connectors common to dial exchanges. A simplified block diagram of this system is shown in Fig. 4.

The control equipment for the automatic insulation tester is located on a local testing position, and is connected to the test train by means of a test

distributor trunk. It uses the exchange test connectors and does not require any other special access means.

Operation of a start key automatically steps the test distributor to the first test connector and the test connector to the first line to be tested. Special lamps which light show the number of the line being tested. This enables the test operator to identify a line when the testing equipment stops due to a line fault.

As testing is completed on each test connector, the switches are released and subsequent test connectors are automatically operated until all lines in the office have been routined. A "routine finished" lamp indicates to the test operator the completion of the tests on a given office or group of lines.

Each idle line (busy lines are passed over) is tested for insulation and FEMF by means of relays in the testing equipment. Testing is done at a speed of about one line per second exclusive of the time required to record faults and restart the unit. When a line with excessive leakage or FEMF is encountered the tester stops automatically and a lamp signal indicates the type of fault. The number of the line is shown on the lamp panel at the testing position. The line number is recorded by the testman before restarting the automatic testing cycle by operation of the "start" key.

The magnitude of the leakage required to operate the alarm circuit and stop the testing cycle is adjustable. In some installations now in use the maximum range is 50,000 ohms. This is adjustable in 10,000 ohm steps down to 10,000 ohms.

Though having somewhat lower maximum resistance detection characteristics than the manual line insulation tester (Electronic type), the more frequent testing of all lines, which is a simple and virtually effortless procedure with the automatic equipment testing arrangement, plus the fact it gives a four-way test on each line, offsets the limitation with respect to leaks higher than 50,000 ohms.

The automatic line insulation testing equipment can test 10,000 terminals of an office consecutively, or it can be set to start testing any terminal of the office beginning with any one hundred group.

The test equipment can be arranged to test several units, one unit at a time. A separate test distributor trunk is required for each unit.

By routine testing at night the number of busy lines is kept to a minimum. Lines that are busy when the test connectors try to test them are passed up. Automatic line insulation testing units are now in service at the following points:

Vancouver, British Columbia (20,000 terminals).
Bloomington, Ill. (7,000 lines).
Rocky Mount, N. C. (6,200 lines).
Sunland, Calif. (6,000 lines).

Additional Features of Automatic Line Testing Equipment

Some of the additional features of the automatic line insulation testing unit are:

(1) This equipment can be located in one office and used to routine test all offices in an exchange from this central point.

(2) Completion of the tests on a given set of terminals, or in an entire office is shown by a "routine finished" lamp.

(3) A "busy lamp" lights when a busy connector is encountered. The test equipment will camp on the busy connector until it becomes free, or until restarted by the testman.

(4) The test cycle can be started at any 100-line group by operation of the 1,000-step and 100-step keys.

(5) Equipment can be set to skip any vacant 1,000-line group. It can also be arranged for skipping any vacant 100-line group by markings on the test distributor bank.

High Speed Insulation Testing Procedures

Persons doing rapid testing of all subscribers' lines in an office must recognize that the type of test and the weather conditions under which the tests are made must be taken into account in both planning the tests and in evaluating the results. By making tests under certain weather conditions and selecting a maximum resistance range best suited to the purpose of the test, it is feasible to check a certain class of plant as distinguished from the normal test which is directed at all parts of the over-all circuit.

As previously stated, the high speed testers are arranged to make three specific types of test, i.e., short test, short ground tests, and foreign voltage tests.

The *short test* is particularly well adapted in checking the condition of drop wire and open wire.

The *short-ground* test is useful in checking subscriber station equipment, inside wiring, and cable.

The *foreign voltage* (FEMF) test is primarily useful in picking up cable trouble.

It should, of course, be understood that any of the above tests may indicate potential trouble in all classes of plant.

Current Bell System practice is to direct their tests at a certain class of plant in order to detect weak spots which can be corrected on a wholesale basis. They have found that trouble is much easier to detect in the several classes of plant under the following weather conditions:

Class of Plant	*Best Condition for Detecting Potential Trouble*
Cable	(a) Dry weather (b) Immediately following sudden drops in temperature during periods of high humidity—usually early in the morning.
Drop and open wire	(a) Wet weather
Station equipment and inside wire	(a) Periods of high humidity

Maximum Alarm Range in Ohms	*Type*	*Class of Plant and Type of Test*
150,000	Short	Drop and open wire following a heavy rain
900,000	Short	Drop and open wire during dry weather
150,000 to 900,000	Short grounds	Station and inside wiring during periods of high humidity
3,200,000 to 6,300,000	FEMF	Cable during dry periods
900,000 to 3,200,000	Short grounds	Cable during dry periods

The maximum resistance range which should be selected for a given test directed at a particular class of plant will vary and will depend on various factors. If the equipment is set to give an alarm on a very high resistance leakage path, and wet weather conditions prevail, such a large percentage of lines will lock up the signal that the results will not be useful in running down genuine weak spots in the plant. Hence, *the range selected must be appropriate to the weather as well as the class of plant at which the test is directed.*

The resistance range and type of test to be employed is set forth in the table below. This is a rough guide being used by some of the larger companies.

Frequency of Tests

The frequency at which subscriber's lines should be tested will vary depending on the class of plant, availability of plant forces to run down and correct potential trouble, etc.

(Please turn to page 28)

Courts and Commissions

Seeks Rate Increase to Carry Out REA Loan Condition

Eastern Rowan Telephone Co. of Granite Quarry asked the North Carolina Utilities Commission on Jan. 19 for permission to increase its rates in order to finance an expansion program.

The company, which serves approximately 585 subscribers in Granite Quarry, Faith and Rockwell, said it has 500 unfilled applications for service on file.

It seeks to raise monthly residential rates from $2.50 for one-party, $2.25 for two-party, and $2.00 for four-party and rural service to $4.25, $3.75 and $3.25, respectively. Business rates would be increased from $4.50 and $3.75 to $7.50, $6.50, $5.50 and $4.50.

Last December, the company obtained a loan of $343,000 from the new federal rural telephone loan program contingent upon its ability to expand service and put a reasonably profitable rate schedule into operation. (TELEPHONY, Jan. 20, p. 30.)

V V

California Company Gets $247,000 Annual Rate Boost

The California Public Utilities Commission on Jan. 17 approved an increase of $247,000 annually in rates for the California Water & Telephone Co., Monrovia, which will affect 16 cities and communities.

By an interim rate boost granted some weeks ago the company already has raised rates $136,000 a year, bringing the total raise to $383,000.

The company sought $809,000 a year in its original application.

V V

$18,000,000 Revenue Increase Requested By N. Y. Company

Heavy increases in wages, taxes and other costs since last June make an increase in revenues essential, Keith S. McHugh, president of the New York Telephone Co., stated on Jan. 27 in announcing that the company had asked the New York Public Service Commission for higher rates.

The increase will apply only to the company's operations within New York State, he pointed out. He termed the increase a "moderate" one which for most residence customers would amount to less than two cents a day.

"A total of $18,000,000 yearly in new revenues will be needed to pay increased costs due to higher wage rates negotiated last fall," Mr. McHugh explained. "And this may be as much as $24,000,000.

"To meet recent increases in our tax bill, $17,000,000 annually is needed. In addition, increased prices hit us as sharply as they do any other business. In 1950, for example, the prices of copper, lead, cotton and zinc ranged upward from 30 to 75 per cent—and all of these materials are essential to telephone service. Because of such increases, the construction program we have planned for 1951 will cost at least $12,000,000 more than it would have cost at June, 1950 prices.

"In May, 1950, the commission granted the company a new schedule of rates providing higher revenues. That was our first permanent rate increase in 20 years. It came at the end of a decade in which our costs have been going up at a faster rate than revenues. Our earnings were far too low, yet the revenues granted us in May were $15,000,000 less than the minimum we then thought necessary. Today, it is certain that the increase was inadequate, and that it is far short of what we need to meet our higher costs.

"The minimum additional revenue requirements we need from our business within New York State come to $44,000,000," he announced, pointing out that the increase would add 8 per cent to the company's revenue. Including this change, the over-all cost of telephone service to the user would be up an average of only 19 per cent since 1939, which he pointed out is "far less than the 75 per cent increase in consumers' prices."

The company president said that the proposed increase is "essential to enable us to keep on doing a good job." In the past five years, he indicated, the company's $780,000,000 expansion and improvement program has provided 2,000,000 more telephones to serve the people of this state and has greatly improved the quality of service.

"The company plans to go right ahead with its program of expansion and improvement, using every bit of the materials and supplies that will be available to it in the coming year," Mr. McHugh said.

V V

Bell Seeks Third Rate Increase in Missouri

The Southwestern Bell Telephone Co. on Jan. 25 applied for a third-round $13,000,000 annual rate increase on its Missouri operations.

The application for the increase was filed with the Missouri Public Service Commission, which has granted the company two post-war increases totaling about $7,000,000 annually.

But H. R. Towles, general manager of the company's Missouri operation, said revenues were lagging far behind cost increases. He said in the same period that the company had received $7,000,000 in rate raises the cost of labor alone had risen $14,000,000 a year.

Mr. Towles said the increased rates would bring the company a little over a million dollars additional each month and the annual total would approximate $12,500,000 if it is granted in full by the commission.

V V

New Rate Authorities Granted By Nebraska Commission

The Keystone-Arthur Telephone Co., Keystone, has been granted authority by the Nebraska Railway Commission to increase rates on all classes of service by $1.00, conditioned upon the owner, R. W. Harvey, forthwith proceeding to improve service.

Business rates will be $3.50 for metallic and $2.50 for grounded, and $2.75 for residence and rural, grounded.

Soon after the application was filed, a petition was filed protesting any increase at all, but this was withdrawn and one of approval substituted on the promise of the owner to provide better service.

The company has 70 subscribers. Its

exchange is located in Keystone, with five lines switched to Arthur. This is the first increase in six years. Last year operations netted but $124.85, and the commission found that this is not a reasonable return. The new rates, which are net, will produce an added income of $840.

The commission also gave authority to the Havana Telephone Co., Indianola, to apply rural service metallic rates granted in 1942 to new lines, the original order requiring special application for each extension. The commission advised the company that these rates may be automatically applied without seeking advance approval.

V V

In Nebraska, Three More Rate Applications Filed

Applications have been filed with the Nebraska Railway Commission for rate increases by three more telephone companies.

The Staplehurst Telephone Co. asks for a 35-cent increase on all classes of its 352 subscribers, to produce added annual revenues of $1,071, necessary to retain employes.

Higher costs all along the line is the reason assigned by the Martell Telephone Co. for an increase of 25 cents a month on all classes of service. It serves 169 subscribers, of which 112 are rural.

The Scotia Independent Telephone Co. seeks increases ranging from 25 to 75 cents, "to offset higher taxes, additional expenses and money needed for building repairs." It has upwards of 300 subscribers, equally divided between town and rural.

V V

SW Bell Granted Permanent Rate Increase in Arkansas

Southwestern Bell Telephone Co. has received permission from the Arkansas Public Service Commission to increase its rates permanently in Arkansas, although not to the extent sought by the company.

A total annual rate increase of $3,605,591 was granted. The company had asked for $4,600,000 yearly.

V V

Receives Rate Raise

The Missouri Public Service Commission on Jan. 19 approved a rate increase for the Bland Telephone Co.

V V

Bill Would Define Territory

Among the bills introduced in the Nebraska legislature, which began its biennial session early in January, is one which forbids a telephone company to extend its lines into territory served by another company, unless granted a certificate of convenience and necessity by the Nebraska Railway Commission.

V V

Minnesota Doctor Files Suit Regarding Directory Omission

A $5,000 suit against Northwestern Bell Telephone Co. was filed on Jan. 18 in Hennepin County district court in Minneapolis, Minn., by Dr. C. C. Olsen for omitting his name from the November, 1949, telephone directory.

Dr. Olsen, a dentist, said he suffered from inconvenience and loss of business.

V V

Colorado PUC Chairman Named

Joseph W. Hawley, was named chairman of the Colorado Public Utilities Commission on Jan. 19.

Mr. Hawley, was reappointed to a six-year term. He succeeds Ralph Horton as chairman. The third member of the commission is John R. Barry.

Ohio Independent Gets Rate Increase

The Troy-Tipp Telephone Co., Inc., Troy, Ohio, on Jan. 8, was granted an increase in rates by the Ohio Public Utilities Commission.

The increase will provide additional yearly revenue of some $38,000.

V V

S. D. Company Rate Increase

On Jan. 22 the South Dakota Public Utilities Commission approved the following rate increases for the Valley Springs Telephone Co. effective on Feb. 21:

Business, individual line	$3.50
Residence, individual line	2.50
Residence, two- & four-party line	2.25
Rural party line, residence	2.25
Rural party line, business	3.00
Switching rate	.75

Hand set telephones, 50 cents per month additional.

V V

Doherty Heads S.D. Commission

C. L. Doherty has been elected chairman of the South Dakota Public Utilities Commission, commission secretary E. F. Norman stated recently. Fred Lindekugal was named vice-chairman.

1951 CONVENTIONS

Louisiana Telephone Association, Heidelberg Hotel, Baton Rouge, Feb. 2 and 3.

Minnesota Telephone Association, St. Paul Hotel, St. Paul, Feb. 6, 7 and 8.

Texas Telephone Association, Texas Hotel, Fort Worth, Mar. 12, 13 and 14.

Nebraska Telephone Association, Lincoln Hotel, Lincoln, Mar. 27 and 28.

Iowa Independent Telephone Association, Fort Des Moines Hotel, Des Moines, Apr. 3 and 4.

Illinois Telephone Association, Pere Marquette Hotel, Peoria, Apr. 19 and 20.

Ohio Independent Telephone Association, Deshler-Wallick Hotel, Columbus, Apr. 23, 24 and 25.

Pennsylvania Independent Telephone Association, Abraham Lincoln Hotel, Reading, Apr. 30 and May 1.

Indiana Telephone Association, Claypool Hotel, Indianapolis, May 9 and 10.

United States Independent Telephone Association Executive Conference, Greenbrier Hotel, White Sulphur Springs, W. Va., May 14 and 15.

Kansas Telephone Association, Town House, Kansas City, Kan., May 22 and 23.

New York State Telephone Association, Mark Twain Hotel, Elmira, June 6 and 7.

California Independent Telephone Association, Palace Hotel, San Francisco, June 7 and 8.

Oregon and Washington Independent Telephone Associations (joint convention), Multnomah Hotel, Portland, Ore., June 15 and 16.

Michigan Independent Telephone Association, Olds Hotel, Lansing, Sept. 12 and 13.

United States Independent Telephone Association (annual convention), Stevens Hotel, Chicago, Ill., Oct. 15, 16 and 17.

Virginia Independent Telephone Association, Roanoke Hotel, Roanoke, Nov. 1 and 2.

Georgia Telephone Association, Dempsey Hotel, Macon, Nov. 8 and 9.

Alabama Independent Telephone Association, Jefferson-Davis Hotel, Montgomery, Nov. 12 and 13.

Mittelstaedt Re-elected California PUC President

Gen. Richard E. Mittelstaedt was re-elected president of the California Public Utilities Commission for his fourth consecutive year recently.

At the same time, Gov. Earl Warren reappointed Justus F. Craemer to another six-year term. The appointment of Mr. Craemer leaves one vacancy on the five-man commission.

V V

Higher Rates For Independent

The Avon Telephone Co. was granted a rate increase by the South Dakota Public Utilities Commission on Jan. 25, to become effective Mar. 1.

V V

Summary of Commission Rulings and Hearings

California Public Utilities Commission

Jan. 22: Order issued authorizing California Water & Telephone Co., Monrovia, to increase rates in counties of Los Angeles, San Bernardino and Riverside.

Jan. 22: Order issued granting Los Gatos Telephone Co. authority to increase rates on an interim basis in Los Gatos, Morgan Hill and contiguous areas.

Florida Railroad and Public Utilities Commission

Feb. 19 & Mar. 27: Hearing on application of Southeastern Telephone Co., Tallahassee, for authority to increase intrastate rates.

Illinois Commerce Commission

Jan. 29-31: Hearing on application of Illinois Commercial Telephone Co., Springfield, for authority to increase rates.

Kansas Corporation Commission

Feb. 5: Hearing on application of The Moundridge Telephone Co. for authority to change rates.

Feb. 5: Hearing on the application of Kansas State Telephone Co., Baxter Springs, for authority to change rates at Scammon, Galena and Baxter Springs.

Feb. 6: Hearing on application of Farmers Mutual Telephone Co., Gaylord, for authority to change rates; and issue $2,000 worth of capital stock.

Feb. 12: Hearing on application of Wetmore Telephone Co. for authority to change rates.

Feb. 12: Hearing on application of The Reno Telephone Co., Abbyville, for authority to operate in Abbyville and Plevna, and on application of A. P. Telephone Co., Abbyville, for permission to cease business.

Missouri Public Service Commission

Jan. 18: Hearing on application of S. and M. Miller for authority to purchase the Everton Telephone Co.; and on application for authority to purchase the Ozark Telephone Co., Dadeville.

New York Public Service Commission

Jan. 31: Hearing on petition of State Telephone Co., Coxsackie, for authority to change the number of shares and par value of its capital stock.

Oklahoma Corporation Commission

Feb. 13: Continued hearing on application of Mr. Allen vs. Southwestern Bell Telephone Co., for telephone service in a new addition to Oklahoma City, not at present serviced.

Feb. 15: Hearing on application of J. B. Carel for authority to discontinue service at Ninnekah.

Feb. 23: Continued hearing on application of Southwestern Bell Telephone Co. for increased rates in Oklahoma.

Wisconsin Public Service Commission

Jan. 31: Hearing on the matter of extension of Beloit service, brought by A. Tregeau vs. Orfordville Telephone Co. and Wisconsin Telephone Co.

V V

"Nothing great was ever achieved without enthusiasm."—Emerson.

HOW TO DODGE TAXES

The *Oregon Voter* recently ran a long and informative article on the operation of Rural Electrification Administration cooperatives. It gave REA full credit for certain achievements. It then pointed out a number of facts which make REA look a good deal less perfect than its sponsors would have us believe.

First of all, there is the matter of tax evasion. "To escape certain forms of taxation a farmer cooperative must be operated without profit," the *Voter* said. "REAs have developed a system of stowing away profits in a manner that evades the taxes. The technique is extremely simple. In effect, it consists merely of naming the profits by a new name. In enlightened REA circles profits have become 'capital credits.' . . . The cooperatives set up capital credits each year representing the profit earned above costs and expenses. Each member is notified as to the amount of profit set aside for his account. Eventually he will be paid cash in the amount of his credits. He will have to enter this cash as income. But in the meantime, the cooperative avoids paying taxes on profits by the simple expedient of booking the profits under a different name."

The *Voter* then dealt with REA's success in electrifying farms which do not have service. Here it said, "It is commonly estimated that 85 per cent of all U.S.A. farms now have electricity. . . . At the end of the last fiscal year . . . between 864,000 and 878,000 farms remained to get electricity. . . .

"If we assume that REA were to carry electricity to all of those remaining approximately 878,000 farms at an average rate of 220,000 per year . . . then REA's job would be completed by June 30, 1954.

"It should not take REA four years to complete the job. Remember that the investor-owned utilities are adding scores of thousands of farm customers each year. . . . As of June 30 the utilities were serving more farm customers than the cooperatives."

Moreover, when the investor-owned utilities expand their farm business with private funds, not everybody's tax money, they have no way of concealing their profits by calling them "capital credits" or any other phony name. They pay a tax—and a heavy tax—on every dollar of investment and earnings. And a second tax is taken from the stockholder on any share left for him.

REA has done some good things. It has enjoyed fine cooperation from the utility industry. But it has many special privileges. It is a tax-eater and a tax-dodger, and despite all the ballyhoo, private enterprise still leads in rural electrification.—Industrial News Review.

Jasper County, Ind., Company Sold, New Corporation Set Up

Alden L. Hart, Kansas City, Mo., president, United Utilities, Inc., recently announced that negotiations have been completed on a contractual basis for the purchase of the physical assets of telephone properties located in Jasper County, Indiana, involving three exchanges, operated for many years by the late W. L. Bott and, more recently, by his son, N. N. Bott, of Rensselaer, Ind. The exchanges involved are Rensselaer, Remington, and Wheatfield, serving approximately 2,800 stations with gross revenues estimated at $150,000 annually.

Negotiations for the purchase of the property were carried on by R. F. Lucier and G. A. Steele of United Telephone Co., Inc., representing United Utilities, Inc., and by N. N. Bott, representing Remington Telephone Co., Jas-

per County Telephone Co., Rensselaer, and the estate of W. L. Bott which operates the exchange at Wheatfield.

A new corporation, known as Jasper Telephone Corp., has been created to acquire the physical assets of the three exchanges. General offices for the new corporation will be maintained at Warsaw, Ind.

Officers of the new corporation include R. F. Lucier, president; A. L. Hart, vice president, and G. A. Steele, vice president and secretary-treasurer. The board of directors is comprised of Mr. Lucier, Mr. Hart, Mr. Steele, T. A. Danielson, and H. D. Clingenpeel.

A petition, filed recently with the Indiana Public Service Commission, asks authority for the new corporation to purchase the physical assets and to authorize issuance of common stock and short-term notes to accomplish such purchases and at the same time authorize issuance of bonds to retire subsequently the short term borrowings. It is understood that the total consideration involved is in the neighborhood of $300,000.

V V

Texas Group Seeks Service With REA Aid

A rather unusual meeting before the Rural Electrification Administration (REA) resulted on Jan. 25 in a decision to have southwest telephone officials confer with cooperative groups from Lubbock and Hereford, Tex., with the possibility of obtaining rural telephone service. The meeting was held in REA telephone staff offices in Washington where representatives of the South Plains Rural Telephone Association, of Lubbock, and the West Texas Rural Telephone Cooperative, of Hereford, outlined the co-ops' problem.

South Plains has received REA approval of a $1,227,000 loan to build a system to serve 3,500 rural subscribers in Lubbock, Hale, Crosby and Floyd counties in northwest Texas. They complain that since the loan application was made, The Southwestern Bell Telephone Co. has become active in signing up farmers in that territory. Congressman Poage (Dem., Tex.) criticized what he called "spite-line activity," but Arthur Peterson, on behalf of Southwestern Bell, claimed his company had developed plans long ago to serve farmers in that area. He conceded that the REA loan had spurred the plan.

Congressmen Mahon and Roberts (both Texas Democrats) also appeared as did the representatives of U. S. Senators Connally and Johnson. West Texas Rural Telephone Cooperative has a loan allocation of $454,000, and has a similar complaint. American Telephone & Telegraph Co. representatives also appeared at the conference. The Bell officials agreed to sit down with the co-op men and work out an area agreement if possible—such conferences to begin immediately.

THE COST AND THE CLOTH

The Opinion Research Corp. recently conducted a survey on taxes. And here are some of the results:

86 per cent of the people interviewed felt that spending should be cut before taxes were raised.

54 per cent agreed that high taxes discourage investors from risking their money and companies from expanding.

70 per cent believed that general government expenses should be reduced.

89 per cent were surprised and shocked to learn that hidden taxes on a 15-cent loaf of bread total five cents, and that taxes on a $2,000 car amount to about $500.

There is nothing academic about the tax issue today. Higher federal income taxes went into effect on Oct. 1. It is widely forecast that this—in the light of soaring military budgets—is only the beginning and that higher taxes still will be imposed on both individuals and corporations. Yet, in the face of that, the pressure for unnecessary domestic spending is unabated. Those who want socialized business, British-type social security, socialized medicine, and all the other alien projects, are still in the running.

At best, the burden of remobilization will be enormous and debilitating. If, on top of this, unbridled domestic spending continues, the result could be ruinous. It could lead to uncontrollable inflation and an impossible drain on the manpower and industrial capacities of the nation. In the name of survival, the government must be forced to cut its cost to fit its cloth.

V V

Rock Creek, Ohio, Company Moves Two-Ton Switchboard

Continued growth and need of a fireproof building are the principal reasons for an expansion project of the Citizens Telephone Co., Rock Creek, Ohio, President William McClusky said.

A moving job which attracted the attention of telephone officials from many communities of the area, took place on Jan. 5 when the Citizens company moved their exchanges from a second floor location to a newly constructed building.

The company's automatic switchboard, weighing an estimated two tons, was picked up intact, lifted out a second floor doorway, on a boom, onto a truck and moved to the new location.

Except for one emergency telephone in the old exchange building, all telephone service in the community was disconnected at 9 p.m. Twelve hours later, except for some long distance circuits, normal service was resumed from the new building.

There were 194 subscribers when the company was purchased by the McCluskys in 1937. In 1940, when the manual system was changed to the dial system which is still in effect, there were 205 subscribers. Since that time an average of 22 new subscribers yearly have been added until now there are 430 served. Only two vacant lines remain on the present boards, Mr. McClusky said.

The new fireproof building is of insulated masonry construction throughout.

A rigging specialist was employed to assist in moving the equipment into the new 100 per cent dial office.

V V

Co-op Formed at Breckenridge, Mo.

The Farmers' Telephone Cooperative has been organized at Breckenridge, Mo.

Plans call for a goal of 2,000 farm customers living in Livingston, Daviess and Caldwell counties. Charles Weldon of Breckenridge was named chairman of the organization. Plans call for financing through a loan from the Rural Electrification Administration.

V V

Buy Two Oklahoma Exchanges

J. T. West and son of Purcell, Okla., have purchased the exchanges at Paoli and Rosedale, Okla., from the Southwestern States Telephone Co., Brownwood, Tex. They have started operating the exchanges.

THE OPERATOR'S Corner

BY
MAYME WORKMAN
TRAFFIC
EDITOR

AN expression of opinion from switchboard operators who handle the customer's calls has considerable value, particularly when management solicits such an opinion from its employes.

On Nov. 11, 1950, Mr. P. P. Anderson, president and manager of the Farmington (Ill.) Telephone Co., informed his operators it was his desire to obtain an expression of opinion from his employes as to the best plan for the company to follow to improve service. Three cash awards were offered for the best suggestions submitted and suggestions were to be judged only upon their merit.

Farmington has a three-position switchboard with approximately 1,200 stations, part of which are magneto, the remainder common battery.

Mrs. Mildred Wilson was awarded first prize for the following suggestions:

"Here are a few suggestions that I think might help to give better service at the Farmington Telephone Co.:

(1) Going over the connections and concentrating on them. Hesitate a second before asking if they are through, to see if you can hear them talking. As soon as a ring-off drop falls, go to that at once, as you know they are either through or waiting for another number. Sometimes we are told, by another operator, that the line is busy when they haven't even been in on it. Will have several calls for the same number and maybe it isn't busy.

(2) Peoria and Canton each have a list of their most frequently called for business houses on their board. Operators ask for information when they could save time by telling the operator whom they are calling.

(3) There are frequent occasions when a Pekin directory could be put to good use.

(4) Eliminate all unnecessary conversation to the subscribers.

(5) Use CLR method when possible and not have split connections so the subscriber can hear you working on the call and is at hand in case more information is needed.

(6) During busy times when the cashier has a lengthy period of adding, it slows us up, as we have to ask the subscribers to repeat, and also causes a lot of disconnects.

(7) During office hours, have the girl at the desk take the details of the trouble and make out the trouble tickets. Subscribers frequently hold us on the line in reporting trouble and, after we have spent this time listening and making out the ticket, we learn the report has already been received and a ticket made. The girl at the desk is in a better position to tell the subscriber when his telephone can be fixed.

(8) Operators should leave their plugs in the common battery drops until they are sure that the party has hung up. A lot of times we answer on these when we could pick up others.

(9) Between 4:30 and 5:00 p.m. is usually a busy time. There are two relief periods at that time. Wonder how it would be to have the operator who works from 5:00 to 9:00 p.m. to work from 4:30 to 8:30 p.m.? From 8:30 to 9:00 is always slow.

(10) We could use another circuit to Middle Grove.

(11) Have each operator be sure that they have all necessary reports on their toll tickets and, when possible, complete their own calls. Write only necessary details on tickets, that is, calling party's number, the called place and number and the filing time, connect and disconnect time. Write calling party's name, rate and other information on the ticket at a slack time.

Operators should check on incompleted calls as soon as they start to work to avoid making duplicate tickets.

(12) Operators should refrain from listening in on conversations.

(13) Do not plug up a drop until they are sure they are ready to answer it. Another operator may be able to pick it up.

(14) Having calls OK'd takes up a lot of time. Sometimes we have to wait on the line until they finish what they are doing before they will come to the telephone. If the party who has the authority to OK the call would come to the telephone and tell us a party was going to make a call and that it would be OK, a lot of time could be saved.

(15) Space rings so that the subscriber can answer the first ring and not have to wait for another to see if it is theirs. Eliminate jerky ringing.

(16) Concentrate more on number changes and notify the calling party what the new number is so they can make a record of it for future use.

(17) Do not give reports, such as, 'They aren't home'—'I can't get them,' etc., when the phrase, 'They don't answer' covers this.

Do not give any report on the stores being closed before trying to ring them. A lot of times there is someone there.

(18) Be sure and look to see if another operator has the number up in the multiple so as not to ring the subscriber in the ear. Sometimes there are double connections up and this permits a third party to be able to listen in on two private lines."

From the foregoing suggestions it is evident Mrs. Wilson gave serious thought to the service rendered in her office and, in complying with management's request for an expression of opinion, frankly stated the conditions that were not satisfactory and suggested action to correct them.

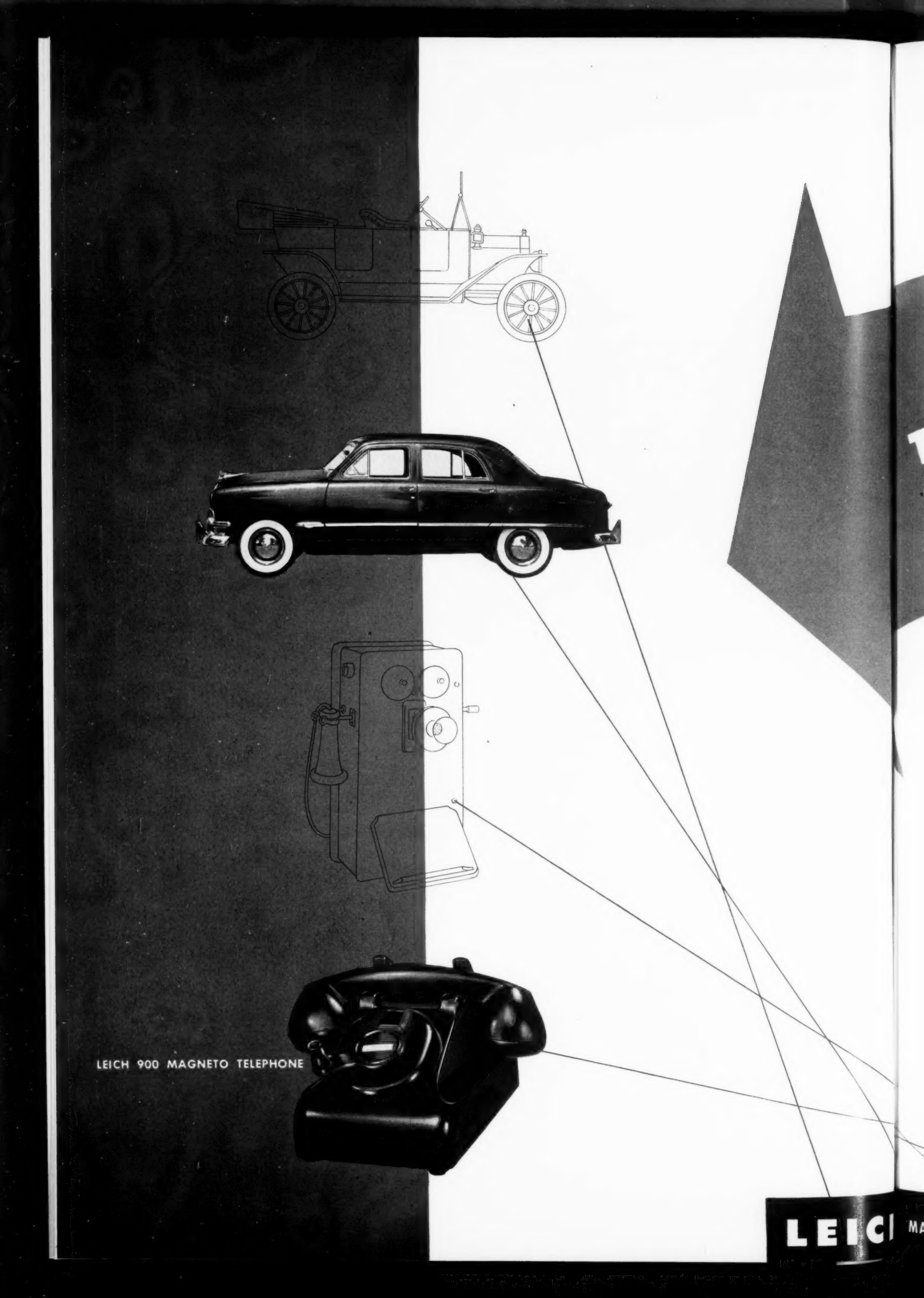
Management has given careful consideration to all of the suggestions submitted by its employes and, in so far as practicable, action is being taken to correct the conditions incorporated in the employes' suggestions.

Practically all of the employes mentioned the condition covered in "suggestion six"—that the noise from the adding machine disturbed the operators at their work. Accordingly, management has provided quarters to perform this work in a different location.

Jessie Moll, winner of the second prize award, also offered some worthwhile suggestions for improving the service, such as an improved method for training operators, a revision of the Sunday schedule to provide more operators certain periods of the day and suggestions for improving the handling of fire calls. It was pointed out the persons responsible for answering the telephone when the fire whistle is blown are hard of hearing and considerable time is required to make them understand the location of the fire. In this connection it was also suggested that a later deadline than 6 p.m. to start notifying the firemen be established, instead of blowing the whistle immediately, as many of the firemen are business men and are usually still at their places of business, which results in unnecessary calls at a time when speed is important.

Janet Baughman, in third place in the contest, suggested a revision of the daily schedule to give the operators more evening freedom and to create more satisfactory working conditions.

(Please turn to page 31)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TAKE YOUR CHOICE

When you know all the facts . . . your choice is easy to make. The Leich 900 Magneto Telephone brings you as many advantages over old style instruments as the sleek 1951 Ford does over the old Model T.

This beautiful magneto telephone is practically the same size as the latest style common battery telephone. The generator crank is on the top, the same as the dial on a dial telephone. It's more readily accessible, easier to crank without bashing your knuckles.

You can use this Leich 900 magneto handset as a desk telephone, or turn it around and mount it on the wall. Other magneto telephones require a different case for wall mounting.

If your exchange is converted to common battery or dial operation, this telephone is still good. Remove the generator, change a few wires, add a dial blank or a dial and you're all set.

Transmission and reception are the crispest, clearest you've ever experienced. The powerful Alnico generator furnishes plenty of power for long, heavily loaded lines. Tens of thousands of these Leich magneto telephones are now in service. Telephone men using them are enthusiastic over their dependable, trouble-free performance. They also like the secure feeling that comes from knowing these phones will still be good as new if they convert to common battery. Write today for complete information. Leich Sales Corporation, 427 West Randolph Street — Chicago 6, Illinois.

TELEPHONE IS BACKBONE OF *Community Emergency Plan*

By J. HARTWELL JONES

A RETIRED army officer, Lieut. Col. Walter E. Myers, has devised and put into effect an emergency-assistance plan that has proved its value over the past two years in a small, rural Florida community. Since the backbone of this plan depends on telephone communication, it is suggested that telephone managers with similar rural properties may find it desirable to consider introducing corresponding ideas to their own communities.

Aside from the savings in property and possibly lives through this systematic method of mutual assistance, it certainly enhances the value of their telephones in the eyes of every participant. This factor should make it of interest to any telephone company.

While rural communities are less likely to be actively engaged in civil defense preparations than the cities, the basic idea of the plan lends itself ideally to such a program.

Colonel Myers, a Phi Beta Kappa graduate of Johns Hopkins University, studied at the universities of Madrid (Spain) and Berlin (Germany). He has been a member of the faculty at University of Lyons (France).

During World War I, he led his class in graduating from the Army Intelligence School. Ordered to make a study of the Mense-Argonne offensive, he also wrote peace reports for General Pershing.

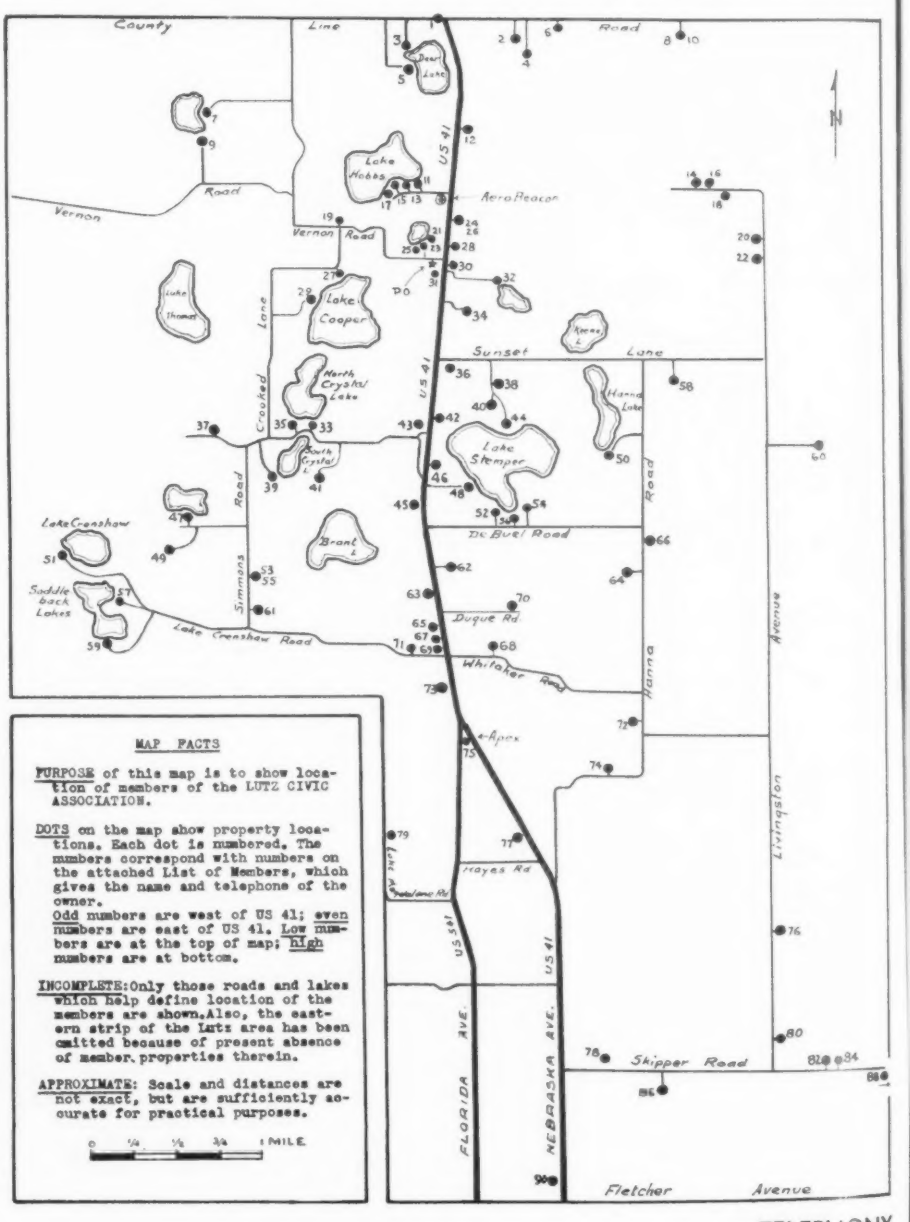
Between World Wars I and II, Colonel Myers conceived and operated the "Third Corps Area Plan" for military training of youth in Winter Posts, a plan which merited commendations from four commanding generals.

Colonel Myers was attached to the general staff of the Brazilian Army during World War II. A recipient of many civilian and military awards, he holds Brazil's "Order of Military Merit," rarely given foreigners.

After retirement, the colonel settled down in the lake-studded community of Lutz, 14 miles north of Tampa, Fla. Telephone service there is rendered through an unattended dial office, working from the Tampa exchange.

In 1948, Colonel Myers originated the idea of compiling a map showing the location of all members of the Lutz civic association, divided into neighboring groups, with a "general alert" (GA) in each group whose duty it was to give alarm to his neighbors in case of fire or any other disaster (see cut).

Each one of these GA's has a telephone, as have most of the membership. Each member was to provide himself with firefighting equipment — most of them with extinguishers and three-gal-



MAP FACTS

PURPOSE of this map is to show location of members of the LUTZ CIVIC ASSOCIATION.

DOTS on the map show property locations. Each dot is numbered. The numbers correspond with numbers on the attached List of Members, which gives the name and telephone of the owner.
Odd numbers are west of US 41; even numbers are east of US 41. Low numbers are at the top of map; high numbers are at bottom.

INCOMPLETE: Only those roads and lakes which help define location of the members are shown. Also, the eastern strip of the Lutz area has been omitted because of present absence of member properties therein.

APPROXIMATE: Scale and distances are not exact, but are sufficiently accurate for practical purposes.

0 ¼ ½ ¾ 1 MILE

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W MAINTENANCE
and then Invest with Safety

Despite the many intricate operations it must perform to meet today's complex needs, the Strowger Automatic switch is surprisingly simple in operation and dependable in use. As a result, maintenance men are able to keep Strowger switches operating at peak efficiency with a minimum expenditure of time and effort.

Check the reports of companies that have used Strowger Automatic equipment over the years. Compare their operating figures with those of other companies. You'll be impressed with Strowger Automatic's low maintenance cost. Economy of maintenance results from sound *design* —combined with skillful *production*. When you buy Strowger equipment today, you are protected by the experience and know-how which has been built into these switches for more than fifty years. When you invest in Strowger Automatic equipment today, you invest *with safety!*

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Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems
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"Is it too late, Doctor?"

Fortunately, it's *not* too late for more and more Americans who are going to their doctors *in time*... at the first sign of any one of the seven danger signals which *may* mean cancer: (1) any sore that does not heal (2) a lump or thickening, in the breast or elsewhere (3) unusual bleeding or discharge (4) any change in a wart or mole (5) persistent indigestion or difficulty in swallowing (6) persistent hoarseness or cough (7) any change in normal bowel habits.

By showing Americans how to protect themselves against cancer, the American Cancer Society is saving thousands of lives *today*—hopes to save countless more *tomorrow* by support for research and medicine. To guard yourself and your family against cancer, call the nearest office of the American Cancer Society or write to "Cancer" in care of your local Post Office.

American Cancer Society

lon force pumps which they could take at once to the scene of fires.

Every home on the emergency map is identified by a number; the lower numbers are at the top of the map, the higher ones toward the bottom. Odd numbers are to the left of the main highway and even numbers to the right. This facilitates rapid location of any members and the map shows the best route to reach that point.

Besides its mutual assistance feature, the map is an invaluable aid to members in spotting their locations for the benefit of the nearest Florida Forest Service fire station, state highway patrol district office; the sheriff, ambulance, and hospitals in nearby Tampa, all of which keep copies of the map convenient to their emergency telephones.

This overcomes a major difficulty common when attempting to describe how to reach a specific rural location to a stranger not familiar with the country roads involved.

Accompanying the map, which is stapled into a heavy paper folder, is a list of location numbers—in proper sequence—with the corresponding member's name and telephone number.

A note of explanation at the top says "Numbers opposite names in this list correspond with member locations on the attached map. 'GA' next to a name on this list designates a GENERAL ALERT member (see attached sheet of Instructions)." It closes with a brief outline of the method of assigning numbers.

The text of the Instruction Sheet is as follows:

"Now: Mark your map. It can save your property, life itself! (1) On the map, circle *your number* heavily. Use the RED pencil. (2) On the map, circle *numbers of your five 'Nearest Neighbors.'* This will make your location stand out clearly, and will instantly show you upon whom to call in 'Individual Emergencies.'

"Individual Emergencies: In event of accidents, illness, snake bites, urgent transportation need, robbery, or other cases not requiring the help of many persons, call upon one or more of your 'Nearest Neighbors' (see above).

"General Emergencies: In case of fire, storm, or flood emergencies in which the aid of many persons is needed, call for a *General Alert* (see below).

"General Alert: Telephone or send word to a General Alert member. These are marked with GA alongside their names on the attached list of members. Tell the General Alert member *your name, your map number,* and *what* and *where* the emergency is. *Be sure* that he can and will start the General Alert *at once.* If he can not do this, notify some other GA member. This is *important!*

"General Alert Members: These are marked with GA alongside their names on the attached List of Members. Their duty is to alert each member of the group of 10 to which they belong. (See List of members for groupings.) In addition, the first GA member notified by the member needing aid will first telephone the *fire department;* then he will notify the other GA members, so that they can alert their groups; then he will alert his own group; after which he will proceed to the scene of the emergency.

"Equipment: In case of a General Alert, each member will proceed at the earliest moment to the scene of the emergency, taking with him a *sprayer, fire extinguisher, shovel, bucket.* This equipment should always be kept on the premises of each member, of course, ready for immediate use. (See The Whole Family, below.)

"The Whole Family: Have everyone in your home familiar with this map, with the General Alert procedures, and with the location of your equipment. If you are incapacitated by an accident, someone will have to know how to proceed. Even have the youngsters ready to do their part."

A common source of danger is from grass fires during a dry season. One member wrote: "We joined the association only a little over a month ago, but in that short time we have had two experiences with the Emergency Service which you give. And the loss from fire in both of these cases might have been very great if it had not been for the quick way aid was secured when called for."

Another member described how a change in wind caused a fire to jump the fire-break which had been cleared. He said: "Within 17 minutes from the first emergency call, a dozen or more members were on our property equipped to fight fire which endangered the homes of four of our members.

"The Forest Service was deeply impressed by the speedy arrival of the volunteer fire fighters. They expressed the hope that the Emergency Map might be installed in other communities which they serve, saying that this would materially lighten their work."

Experience of the people down in Lutz, Fla., seems to indicate that the operator of rural telephone properties would be performing a real service for his subscribers in calling some such plan to their attention.

It could be turned over to some progressive farmer who would benefit by development of the idea, but if the telephone manager himself would sparkplug the movement it should be a valuable public relations assist to his company.

The foregoing Emergency Service is only one part of a complete "Rural Organization Plans" book which Colonel Myers is anxious to publish and dis-

tribute at a nominal cost to rural communities throughout the nation. In addition to the emergency service, there are plans for providing medical service; for developing the economic, cultural, and social phases of the community; for fund raising; and for fitting the community into the national defense picture.

V V

New Signal Corps Supply Depot Planned for Pennsylvania

The Department of the Army announced on Jan. 17 that construction will start in the spring on a new Army Signal Corps depot on a 1,400-acre tract at Tobyhanna, Pa., near Scranton and Wilkes-Barre.

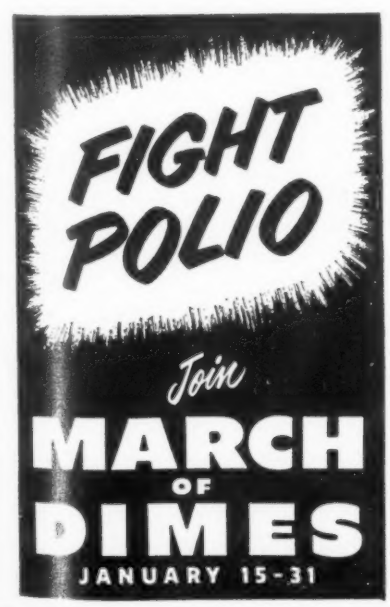
The land on which the new depot will be built is a former military reservation, now owned by the state of Pennsylvania. The state will be reimbursed for the property.

Construction of the installation by the Army Corps of Engineers will be under the direction of the Philadelphia district engineer office. Construction workers, and later personnel for the depot staff, will be hired in the Tobyhanna area, wherever possible. The depot is expected to employ about 5,000 persons ultimately.

Plans call for completion of the new Signal Corps depot early in 1953. The installation will be of permanent construction, including approximately 2,000,000 sq. ft. of storage space.

V V

The telephone exchange at the Pentagon building in Washington, D. C., has 68,600 miles of trunk lines.



In Emergencies...

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When sleet, wind, flood or fire interrupts your service, Graybar knows you must have replacement items *fast.* Graybar has outstanding facilities for delivering them wherever and whenever you need them.

Our nation-wide network of over 100 supply stations (warehouses and offices staffed with experienced personnel) provides broad accessibility to stocks of essential telephone supplies. Our long-established relationships with select manufacturers assures their extraordinary co-operation in filling extraordinary needs. Our experience in hundreds of telephone emergencies of all kinds gives us the know-how for immediate action and efficient follow-through.

Ever since the first telephone line was erected, telephone companies have been finding Graybar* service invaluable in emergencies . . . plenty helpful, too, in meeting everyday requirements. *Graybar Electric Company, Inc. Executive offices: Graybar Building, New York 17, N. Y.* 4806-1

**Prior to 1926, Western Electric Supply Dept.*

EVERYTHING IN TELEPHONE SUPPLIES via GraybaR

IN OVER 100 PRINCIPAL CITIES

High Speed Testing

(Continued from page 14)

Companies that have had some experience with high speed insulation testing recommend frequent complete tests of miscellaneous cable cycles to detect:

(1) Deteriorated drop wire.

(2) Cable sheath openings which have resulted in only one or two pairs being affected.

(3) Potential faults in subscriber stations which would eventually cause service interruption.

The value of complete periodic tests is shown by one company on the west coast. This company reported that cable plant which had been periodically tested during the summer months developed virtually no trouble during the fall rains.

Companies contemplating the adoption of the high speed insulation method of testing subscriber's lines will be interested in the Bell System form (shown below) which is useful for recording the results of tests. This form, or one like it, should be used in order to keep an orderly record of lines having excessive leakage and to show methods which were required to correct the fault.

Conclusion

The merits of preventive maintenance from the standpoint of improved service and reduced over-all operating costs have been well established. The number of plant employes required to maintain top-quality service in an exchange is definitely higher in those exchanges that do not "anticipate faults" before they occur. A prime advantage of correcting trouble before it occurs is that the work load can be

RECORD OF ELECTRONIC INSULATION TESTS

OFFICE_____

CABLE BAY GROUP	PAIR SW TERM.	TEL. NO. CKT. NO.	INDICATED BATT.	R	Y	G	DATE CLEARED	TRBLE. CODE

olaterials and Supplies . . .

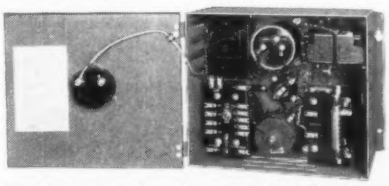
b uarantee of Stromberg-Carlson
ca eading Manufacturers . . .

. . . bigger savings plus better service with raytheon rectifilters*!

For more than a decade, leading independent telephone companies have found that Raytheon Rectifilters are the most economical and efficient way to supply steady DC power to PBX boards directly from an AC source.

With no moving parts, the Raytheon Rectifilter requires neither adjustment nor maintenance. It will outlast many sets of batteries, release wires carrying charging current from central office to subscribers' PBX boards for revenue producing service, and minimize power cost because of high efficiency in converting from AC to DC.

Dry disc rectifying units and other components are designed for long-life, trouble-free service. The Raytheon Rectifilter will end your telephone power problems. Just plug it in, close the door —and forget it!

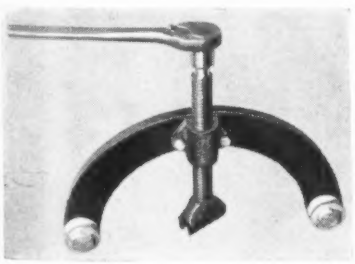


RFR 1044-G RECTIFILTER WITH DOOR OPEN

*Reg. U.S. Pat. Off.

ratchet handle slack puller

made by Cable Spinning Equipment Co.



The same dependable Slack Puller, but with a ratchet added. This type of handle enables the operator to pull slack with the Little Giant Slack Puller, requiring even less effort than would be needed with the conventional model.

The correct tool for those who use the Puller day after day.

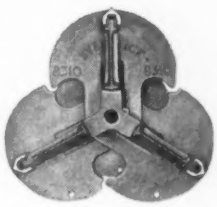
everstick anchors

. . . are designed to meet the most rigid anchoring and guying specifications.

The patented EVERSTICK Nut Housing locks anchor firmly on rod, making installation simple under all conditions and permitting easy recovery of the rod. Note well-designed, heavily constructed sections of metal in base plate.

EVERSTICK Expanding Plates are *ribbed* to double their original strength; their cutting edge and wedge shape arm socket reduces earth resistance to a minimum and assures easy expansion.

Three-Way EVERSTICK with expanding plates—contacts solid earth at every point around base plate, giving full benefit of earth's holding power.



Spreader Arms extra heavy ribbed with ball and socket joint at top and clinched socket on expanding plates allow heavy bearings to move freely with minimum friction, insuring easy expansion which eliminates buckling or breaking of arms.

EVERSTICK Anchor

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spread and overtime peaks avoided. Savings in material, labor and car expenses can all result from a well thought out and executed preventive maintenance program.

High speed line insulation test (automatic or manual) arrangements give the plant forces a scientific method which will detect weak spots in the outside plant before the subscriber is aware that his service is in jeopardy. By detecting and later correcting trouble on a grouped basis, this phase of plant maintenance is placed on a wholesale instead of the retail level. It is a well-established fact it is always cheaper to buy wholesale than retail.

The use of either manual or automatic high speed line insulation testing equipment will have maximum value in the larger exchanges, but it would also appear to have a field of use in many medium sized exchanges, particularly those having dial CO equipment.

Small manual exchanges can supply the general principles described herein with respect to testing limits, conditions under which tests are made, etc., by simply using a high range portable ohmmeter in conjunction with a special test cord (arranged to operate the line and cut off relay). By making tests from the face of the board during the periods of low traffic, a large number of lines can be tested in a short time, and potentially defective lines readily detected.

It is our belief the use of high speed insulation resistance testing equipment to detect weak spots in the outside plant and in subscriber's station equipment, plus a program of following through on those lines which show excessive leakage, will soon become standard practice throughout the Bell System and is worthy of adoption by Independent telephone companies.

In the Nation's Capital

(Continued from page 10)

That could be one explanation for the inflation of the dollars which show up so clearly in this Commerce Department study. When government policies keep pushing consumption while at the same time neglecting the incentive to invest for production, we get more mass purchasing power and less goods to sell. Today's 50-cent dollar could be the result.

Compare this with communistic Russia, where the national economy has been ruthlessly pointed toward increases in plant production at the expense of consumption. The steel mills and the power plants of the Soviet went ahead, according to schedule, even though some workers had to go barefooted and the Ukraine peasants starved to death. Russia today has a production plant which might be said to have been built out of the bread of the workers' mouths. But it is there—built—and producing. Russia has savagely defended her "seed corn" even though the peasants went in rags.

Comparison of the two economies—Russia's and ours—is a strange commentary on one system that is supposed to be operated exclusively for the benefit of the people and our capitalistic system which Russia claims is designed to despoil the common man.

Speaking of developments abroad, the well-known New York security analyst, Robert S. Byfield, recently pointed out in one of his New York City market letters, that the socialist countries of Europe have even less regard for the economic integrity of their national productivity than the United States. Commenting on the losses of the French national railway, Byfield says that this nationalization system:

". . . carries seven workers on pension for each 10 active employes, and allows a locomotive engineer to retire at age 50. Recently the Control Committee of Nationalized Enterprises has estimated that their over-all deficit for 1950 would exceed Frs. 200 billion, equivalent to around $600 million, a figure which does not bulk large in the American scheme of things, but is very substantial for France. The second largest producer of losses is the Nationalized Gas Authority. In addition to these operating losses, the French treasury must naturally provide most of the funds for the maintenance of the plant and equipment of its nationalized industries, to say nothing of further outlays for plant expansion and growth. These purposes will take at least an additional Frs. 350 billions. We do not know to what extent this last figure represents merely normal renewal because as everyone knows when a locomotive, power plant or a mile of track wears out the new cost will be much more than the original cost and funds must be provided over and above what is taken care of by normal depreciation debits based on cost.

"The French Association for Free Enterprise, whose pamphlets we have read with interest and whose activities unfortunately are little known in the United States, has revealed that employes of nationalized enterprises and of the government bureaus themselves receive pensions which are between 3½ and 4 times higher than those of employes in private enterprises.

"Undoubtedly the French will attempt to cut down the terrifying Welfare State overhead which has been generated in the last decade or two, but political considerations may make

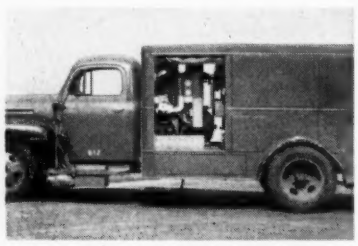
Now, a truck-mounted compressor powered by your truck's engine

Jaeger

"TRAVEL-AIR"

For big savings in first cost, half the maintenance cost, and remarkable operating advantages.

Furnishes 125 cfm at 100 pounds pressure.



Travel-Air Compressor units are easily adapted to your own truck body designs. For five makes of 1½ and 2-ton rated trucks.

The famous heavy-duty Jaeger Compressor, arranged to mount on your service truck and get its power from the truck engine! A simple, rugged power-takeoff does the trick. Savings are immediate and continuing. No compressor engine, clutch, battery, trailer unit, tires, etc. to buy *or maintain.* No compressor engine cooling system to guard. No warming up after crews reach the job — and, crews, compressor, tools and materials get there at the same time. You utilize an engine that usually stands idle 7 out of 8 hours. There are more advantages — write for Bulletin TC-1, or see your Jaeger distributor.

Other Jaeger Compressors — Portable and Stationary — 56 to 600 cfm.

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this extremely difficult. It is quite obvious that if the French were not weakening themselves so drastically to maintain their so-called social gains they would have much more available for guns and tanks and the job of our GIs would not be quite so onerous."

Trivia

CORRECTION: Several readers have written in to correct a statement recently made in this department about Dublin having the largest park in the world—pointing to such places as Yellowstone. Pardon! The qualifications should read: "Largest park within municipal limits of a single city." By way of explanation, one can only plead the vulnerability of the written word to obvious error. Of all professions, the editor is less likely to get away with anything. When a doctor makes a mistake; it is buried. When a lawyer makes a mistake; he gets paid for it. When an editor makes a mistake; it is published.

• • •

Ilka Chase, the romantic authoress, says that notwithstanding any increase in the cost of a public telephone call from five cents to 10 cents, it is still the best buy in America, provided it is a call "from the right man!"

• • •

Radio Broadcasting Note: Drew Pearson may continue to talk through his hat after next month, but it won't be an Adam!

The Operator's Corner

(Concluded from page 19)

She also suggested placing a bulletin board in the operating room for posting information that would be helpful to the operators, such as current changes and new instruction, stating, "Sometimes some of the girls miss the new things that came up because they don't happen to be in the office when it is mentioned."

Miss Baughman also mentioned the importance of proper training, stating, "If a new girl learns to do things correctly in the first place she will have more confidence in herself and when she takes her position at the switchboard she will become a better operator, which is what should happen when the company is investing a good deal of money to have her trained properly."

Many good suggestions for the betterment of the service were also offered by other operators. It is the writer's opinion that service as a whole will be greatly improved and both the employes and the company will benefit as a result of management's request to have its employes express their opinion.

Traffic Questions

(1) Does noise in the operating room disturb the operators at their work?

(2) Is an operator permitted to discuss communication arrangements between the telephone company and its customers?

(3) Why is it important to handle plugs in the prescribed manner?

(4) How should an operator ring on a subscriber's line?

(5) How should a report that the called line is out of order be given?

Answers are printed on page 36.

V V

Gridley, Kans., Company Sold

Clarence Holmquist of Kansas City, Mo., is the new owner of the Gridley Telephone Co., having purchased the business from E. Glenn Robison. Mr. Holmquist was employed as supervisor of installations by Western Electric Co. for 15 years and also did contracting work for the Southwestern Bell Telephone Co.

On the job records prove that the Neale Model D Pull-type Cable Spinner speeds new work, keeps line charges low.
Cut Maintenance Costs—
Speed New Construction

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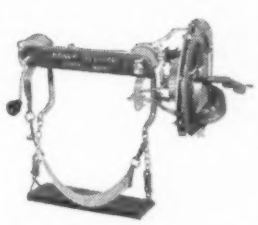
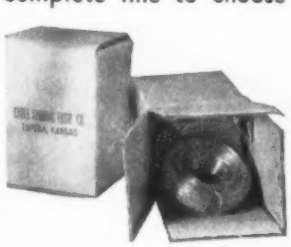


Neale Model B One Man Cable Spinner operates from ground or strand.



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THE PLANT MAN'S *note book*

BY RAY BLAIN TECHNICAL EDITOR

THE writer had the honor recently of examining a new type of telephone now being developed. This instrument, among its numerous new features, makes use of micro switches in the switch hook instead of the conventional spring contact switch.

While the micro switch is probably more expensive, it appears to present some advantages, one of which is that it will not be affected by dust or moisture, and is small and compact.

• • •

It has been said: "The turtle doesn't make any progress until he sticks his neck out."

• • •

The brother of the writer, Foy, has sent us a piece of Alpeth cable sheath, which has been punctured by a small lead-boring insect out on the west coast, to cause a case of trouble.

This is the first case of trouble of this nature that has come to our attention on this new type of cable. The hole was not only cut through the outer plastic jacket, but through the aluminum shield as well.

• • •

Someone has said that a sense of humor is what makes you laugh at something which would make you mad if it happened to you.

• • •

Robert J. Smith, on leave of Pioneer Air Lines and present vice chairman of NSRB, believes that companies should always be training understudies for responsible jobs, developing talent and promoting from within. "If you lose a president," he once remarked, "you should only need to hire a janitor."

• • •

In 1900 there were only 8,000 automobiles in the United States; today there are over 41 million.

• • •

It is indeed surprising to note how much better desk stand cords are today, from a service standpoint, than they were only a few short years ago. Seldom is it necessary to replace a cord now, providing, of course, it has been properly used. While the tinsel conductors have been improved, perhaps the greatest advance has been the replacement of the textile insulation with rubber.

In the old days, a few drops of liquid would make a cord noisy and its replacement necessary. The present-day rubber insulated cords can withstand considerable moisture without causing trouble.

The retractable cord also reduces tangling which will still further increase service life.

• • •

Page 428 of the Washington, D. C., classified telephone directory carries the heading, "Jewelry-Junk."

• • •

Because of the increased pressure of the present-day national emergency, it is not surprising how often toll operators will report that all circuits are busy to various points of the country. For this reason, calls are frequently delayed for a considerable period of time.

Not only are business people making more calls these days, but it also appears that they are talking longer than was average only a few months ago.

• • •

A headset plug, mistakenly placed in the wrong socket, plus scientific curiosity on the part of a Signal Corps engineer at the Signal Corps Engineering Laboratories, Ft. Monmouth, N. J., may be responsible for a new approach to the study of stuttering and "psychoacoustics," the study of speech and how it is affected by a person's hearing.

Since that time, after finding no previous scientific work in the field, the reactions of more than 100 people to the delayed speech feedback phenomenon have been tested by the Laboratories.

On the subjects tested thus far, some develop a quavering, slow speech, others may halt, repeat syllables, raise their voice in pitch or volume, and reveal tension by reddening of the face. Some have challenged the disturbance, but none as yet have defeated it. A prolonged session of more than two minutes proves physically tiring.

These experiments point out that a person's speech depends upon his hearing. The "artificial stuttering" produced by the delayed speech feed-back technique may aid speech scientists in finding a solution to the cause of stuttering, which is said to affect about one per cent of the world's population, some 22½ million people.

This research combines for the first time neural and electronic networks, making it possible to investigate the production of speech itself. By controlling or altering the electronic network, in this case the magnetic tape recorder, psychologists may be able to learn more about the person's nervous system.

Delayed speech feed-back problems, such as a powerful echo returning to a speaker's lecture platform, are important to the Signal Corps which is also responsible for the development of public address systems for the army.

V V

Now with the war emergency becoming more imminent and national security more important, there is a definite need for inexpensive telephone secrecy equipment. While it is true that effective telephone secrecy devices are now available, it is also true that these are large, heavy, bulky and expensive.

It would seem that someone could perfect a small device so that when two telephones so equipped are connected, the parties could converse with each other with complete secrecy. This task would not appear to be as difficult as many of the problems in telephony that have been successfully solved in the past.

V V

Plan S. C. Cooperative

Working in cooperation with Horry County Electric Cooperative, a group of South Carolina rural residents are endeavoring to set up a telephone cooperative and expect to organize a board of directors soon.

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PLANT MAN'S QUIZ

Q. Will you please advise us whether it would be possible, and economical, to precast concrete manholes at a central point and then install them throughout the plant as required?

A. This practice is entirely possible. However, we sincerely doubt that it would prove economical.

Precast manholes are extremely heavy and for this reason special machinery is required to handle them properly. In addition, they are difficult to level and align properly in the duct run. Small concrete manholes are often precast in sections for use on buried cable installations. These small-sized manholes have proved fairly satisfactory, but it is doubtful if the same principle would prove suitable for use on manholes of standard size.

In general, it is believed that the most suitable and economical manhole can be constructed by the use of sectional steel forms and ready-mixed concrete.

• • •

Q. What does "tension splicing" of lead covered telephone cable mean?

A. Tension splicing of lead covered telephone cable is accomplished by applying tension to cable spliced in cold weather so that it will be equal, from a bowing standpoint, to cable spliced in warm weather.

Experience has proved that when the cable is spliced at a low temperature, and later is subjected to summer temperatures and expansion, bowing is certain to occur unless the cable is spliced under proper tension.

• • •

Q. What method is recommended for unloading heavy cable reels from box cars?

A. The best method for this purpose, with which we are familiar, is to make use of a construction truck equipped with a winch.

Place skids made of heavy planks in the car door, with the lower ends resting on the ground or in a truck. Next place a bar through the center of the reel with a sling over each end to attach to the winch line. A snatch block may then be used to reverse the winch line when both sides of the box car are not accessible.

The winch may be slacked off slowly to permit the heavy reel to roll down the skids. This is a much better arrangement than placing a line around the reel to control its roll as this practice may break the lagging and damage the outer layer of cable.

When a winch line is not available, the same method may be used with block and tackle.

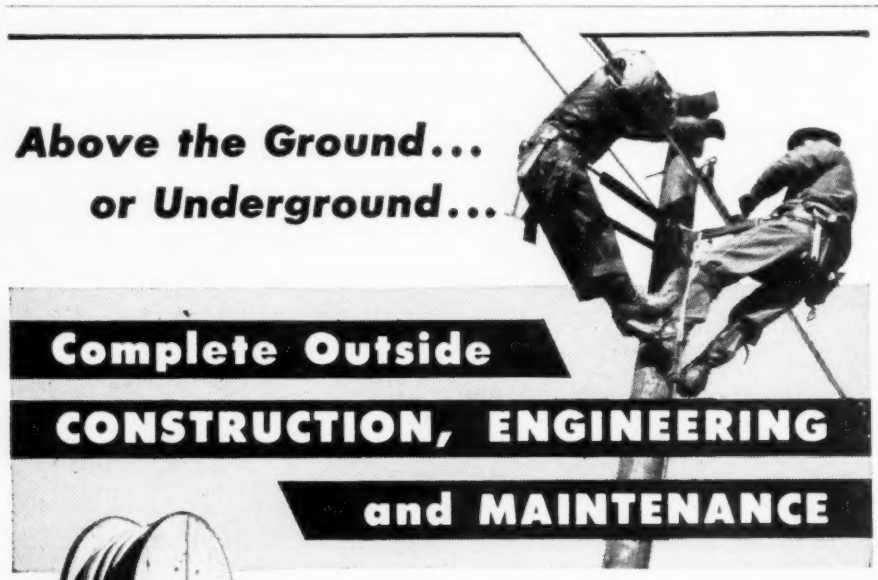
• • •

Q. Will it be possible to make use of a magnetic tape recorder for both telephone recording and dictation purposes?

A. This is entirely possible providing the recorder is equipped with an automatic volume control and a back spacer. A floor switch for use in stopping and starting and back spacing is also desirable for use in transcribing from dictation.

A tone warning device must also be provided so as to comply with the FCC ruling on telephone recording.

Such a recorder may also be used to advantage for service observing and the instruction of operators.



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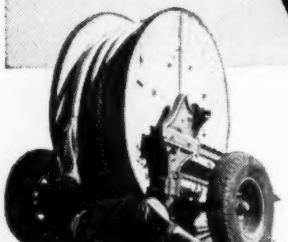

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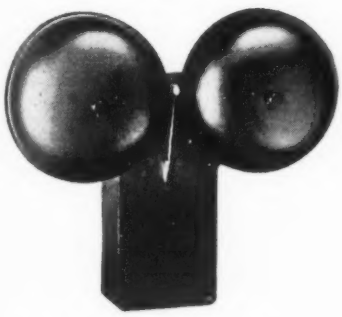

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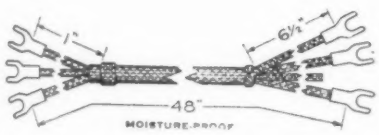

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LAWRENCEVILLE ILLINOIS

BRIG. GEN. VICTOR A. CONRAD, who recently was appointed Chief of Army Communications Service Division, Office of the Chief Signal Officer. This division is responsible for all army fixed plant communications — both wire and radio. General Conrad, who was graduated from the United States Military Academy in 1924, has had a long and varied career in the Signal Corps, serving both in this country and overseas areas.

Export Volume Creates British Shortage, Industrialists Say

There are still a half million people in Great Britain who want a telephone —and can't have one. Reasons advanced for this three-year delay in filling applications for service in non-priority addresses are varied, but the underlying reason is the volume of electrical and telephonic equipment being exported.

British industrialists now declare that the world is being equipped with British equipment at their expense. They state that they continue with obsolete machines and older methods while the higher exports force a continued drain on equipment.

In the House of Commons recently, members of Parliament complained that people have been waiting for six years. Even those with the highest priority — nurses, doctors, midwives, etc.—might have a two-month wait—as against a two-week wait before World War II.

The postmaster general, in replying to this criticism, made the point that there has been a 50 per cent increase in the number of telephones in use in Great Britain since 1939. One in four of the telephones now at work in Britain has been installed since 1945—which was a reasonably good record, the postmaster general said.

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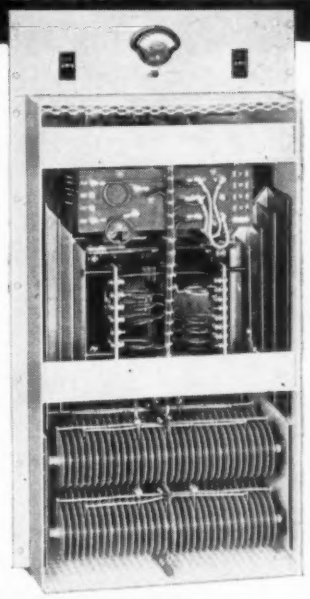

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150A	1Ø	6.0 amp. 24V.
300A	1Ø	12.0 amp. 24V.
600A	1Ø	24.0 amp. 24V.
1250A	3Ø	50.0 amp. 24V.
2500A	3Ø	100.0 amp. 24V.
*150D	1Ø	6 amp. 24V.
		3 amp. 50V.
*300D	1Ø	12 amp. 24V.
		6 amp. 50V.
75B	1Ø	1.5 amp. 50V.
150B	1Ø	3 amp. 50V.
300B	1Ø	6 amp. 50V.
600B	1Ø	12 amp. 50V.
1200B	1Ø	24 amp. 50V.
1250B	3Ø	25 amp. 50V.
2500B	3Ø	50 amp. 50V.
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Blackwell Wins 1950 Edison Medal

Otto B. Blackwell, Plandome, N. Y., retired assistant vice president of the American Telephone & Telegraph Co., has been awarded the 1950 Edison Medal for "his pioneer contributions to the art of telephone transmission," including world-wide telephones linked by radio, H. H. Henline, secretary of the American Institute of Electrical Engineers, announced Dec. 15.

The Edison Medal was established in 1904 by an organization of friends and associates of Thomas A. Edison to serve "as an honorable incentive to scientists, engineers and artisans to maintain by their works the high standard of accomplishment" set by Edison. It is awarded annually, by the American Institute of Electrical Engineers, to a resident of the United States or Canada, for meritorious achievement in electrical science, electrical engineering, or the electric arts.

Recipients have included George Westinghouse, Alexander Graham Bell, Frank B. Jewett, and other oustanding scientists. J. B. MacNeil, of the Westinghouse Electric Co., East Pittsburgh, Pa., is chairman of the award committee.

A former vice president of the Institute, and an active committee member, Mr. Blackwell retired last year after 43 years with the Bell System, during which he obtained a total of 22 patents on improvements in telephone communications, and held important posts both in AT&T and with the Bell Telephone Laboratories, Inc.

Answers to Questions on Page 31

(1) Noise in the operating room certainly does disturb the operator and all unnecessary noise should be avoided.

(2) An operator is not permitted to discuss communication arrangements between the telephone company and its customers except as required for the proper handling thereof.

(3) This action on the part of the operator safeguards the service and prolongs the life of the plug.

(4) The operator should ring at 10 second intervals until the station answers or it is time to give a report.

(5) Repeat the called number and say, "The line is out of order," and, if desirable, add, "and has been reported."

A Selected List of Telephone Books

• ***How to Build and Repair a Farm Telephone Line*, published by Telephony Publishing Corp.**
Eight-page booklet, unbound, 25 cents per copy to non-subscribers of TELEPHONY; special prices available to subscribers and to anyone ordering 25 or more booklets. This booklet, well-illustrated with photographs and diagrams, tells what was done to place a run-down farm line in good condition to furnish excellent service. The text describes how to attach wire to an insulator, how to attach brackets, how to set a pole, how to string wire, how to make a splice, how to protect telephone line from power line hum, how tree branches touching wires hamper transmission, how to connect drop wire to line wire, how to attach drop wire to house, how to connect house line to telephone, and how to connect the ground rod. The materials needed for a farm line are also listed.

• ***Rural Telephone Trouble*, published by Telephony Publishing Corp.**
Four-page reprint of an article published in TELEPHONY giving 33 magneto telephone and line troubles most commonly encountered, with suggestions as to the most likely cause of each—whether in the telephone set, the protector, the line, or the central office. Cost is 25 cents per copy to non-subscribers of TELEPHONY; special prices available to subscribers and to anyone ordering 25 or more reprints.

• ***ABC of the Telephone*, published by Telephony Publishing Corp.**
Vol. I. 84 pages—8½ ins. x 11 ins. Prices: One copy, $1.50; two to 25 copies, $1.35 each; 26 to 50 copies, $1.20 each; 50 or more copies, each.....$1.05
Reprint of first 21 installments of article by Frank E. Lee running currently in TELEPHONY. Covers fundamental information concerning electrical circuits, telephone transmitters and receivers, induction coils, generators, ringers, relays, line protection, dials, automatic switching, drop wire installation. Particularly beneficial to beginners.

Vol. II. 78 pages. Prices same as for Vol. I.
Covers sub-station protector installation, station wire installation, subscriber station installation, fault locating, relay circuits, planned maintenance program, electronic testing of cable and drop wire, crosstalk and transmission developments, attenuation and loading coil theory.

• ***Handbook for Telephone Managers and Engineers*—(In Two Volumes). Published by Automatic Electric Co., 1033 W. Van Buren St., Chicago, Ill. (illustrated) Vol. I (294 pages). Temporarily out of print. To be combined with Vol. II at a later date.....$3.00**
Deals primarily with design, construction and maintenance of outside plant and also includes introductory sections containing mathematical and engineering data, formulae, tables and other material of a general nature.

Vol. II (732 pages).....$3.00
Deals with telephone transmission data; subscribers' instruments; central office equipment; testing equipment and methods; protection, inductive interference, crosstalk; voice frequency repeaters; carrier telephone and telegraph systems; toll systems and radio-telephone systems.

• ***Telephone Handbook of Standard Outside Plant Construction Methods—Book No. I.* Published by Kellogg Switchboard & Supply Co., 6650 S. Cicero Ave., Chicago, Ill. 365 pages (illustrated).....$3.50**
Covers standard outside plant construction practices, pertaining to pole line and long span construction. Seven sections are subdivided into more than 100 parts. Subjects are cross-indexed.

• ***Fundamentals of Telephony*, by Arthur L. Albert (1943) 366 pages.....$4.00**
This elementary book, intended for beginning students and for telephone workers, is devoted exclusively to telephone communication. The first four chapters present briefly the principles of electricity and acoustics upon which telephone practices are based. The book then considers the following subjects: Telephone transmitters, receivers, telephone sets and circuits, telephone lines, manual telephone systems, dial telephone systems, loading, telephone measurements, noise and cross-talk, and repeaters and carriers.

• ***Electrical Fundamentals of Communication*, by Arthur L. Albert (1942); 554 pages.....$5.50**
This book deals with fundamentals of electricity as applied to communication, including telegraphy, telephony, and radio. Contains basic electric circuits and phenomena using illustrations, terminology and problems from communication industry standpoint. Contains tables and 359 excellent drawings; is non-mathematical and clearly written for communication people having little or no college training. Especially suited for use in telephone training courses for new employes. Also valuable for employes who wish to extend their knowledge of electricity. A summary as well as review questions and problems given at end of each chapter.

• ***Soldering for Workshop, Farm and Home*, by John Bonert (1941); 111 pages, 28 illustrations.....$2.00**
Valuable soldering information for telephone plant men, particularly apprentices, is presented in this book written by a telephone man with years of practical experience. The book discusses soft soldering, fluxes, tinning, soldering coppers, wire splices, soldering on lead, closing seams in a split cable sleeve, soldering and sweating with a torch, joints, hard soldering or brazing, construction of a soldering copper holder and pad, etc. No scientific terms or complications have been used in the book, which is intended to help the beginner or to refresh the memory of an experienced worker.

• ***Electrical Communications*, by Arthur L. Albert (1950); 581 pages (third edition).....$6.50**
Presentation of electrical theory of communication, including vacuum tubes, networks, filters, and discussion of entire industry. Various subjects considered as related to one another in modern communication systems. Designed as a college textbook and reference book for those having technical training. Others will find much of value in it, as use of mathematics has been limited but not at a sacrifice of engineering exactness.

• ***Automatic Telephone Practice*, by Harry E. Hershey (1949); 241 pages (sixth edition).....$6.00**
Generously illustrated, well-organized, this book is a complete reference work covering Strowger equipment. Five sections are devoted to automatic equipment: (1) Detailed explanation of equipment without reference to circuits; (2) historical background of systems; (3) fundamental elements appearing in all telephone and non-telephone circuits; (4) detailed study of typical modern circuits with each circuit analyzed contact by contact; (5) standard adjustments covering switches and relays.

• ***Anatomy of Depreciation*, by Luther R. Nash (1947).....$5.00**
Discussion of utility accounting methods in effect from time to time, or proposed by regulatory or utility representatives. Covers (1) early accounting history; (2) retirement accounts; (3) straight-line methods; (4) service lines; (5) interest methods; (6) reserve-size methods; (7) treatment of reserves; (8) relative advantages of available methods.

• ***Inductive Coordination of Electric Power and Communication Circuits*, by Laurence Jay Corbett (1936); 161 pages.....$1.75**
This excellent book discusses the nature of power transmission and of communication transmission, the effect of magnetic and electric induction and various influence factors. Susceptiveness and coupling factors, effects of conductor arrangements, transpositions in power and communication circuits and their coordination, power system wave shape, control of residual voltages and currents and many other phases are discussed. This book should contribute to a fuller understanding by power and communication engineers of each other's problems.

• ***Telephone Theory and Practice*, by Kempster B. Miller (1933); 1414 pages.....$19.50**
A set of three volumes. "Theory and Elements" (1930, 468 pages, $6.50); "Manual Switching and Substation Equipment" (1933, 439 pages, $6.50); and "Automatic Switching and Auxiliary Equipment" (1933, 494 pages, $6.50). Volumes may be purchased separately or as a set. This series replaces "American Telephone Practice" by the same author, published early in the century. The set comprises an excellent source of accurate information of entire subject of telephony.

• ***Fundamental Electronics and Vacuum Tubes*, by Arthur L. Albert (1938) 422 pages.....$6.00**
The increasing use of vacuum tubes in telephone work makes this non-mathematical book of practical value to persons in engineering and operating branches of telephony. The book discusses the principles of electronics and the theory of vacuum tubes, photocells and copperoxide varistors in telephone circuits and radio. It delves into the theory of these devices and the design and operation of circuits in which they are used.

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A. O. Black Dies, Veteran Pa. Independent Consultant

Arthur O. Black, Butler, Pa., veteran Independent telephone executive, a director and a past president of the Pennsylvania Independent Telephone Association, and a member of the United States Independent Telephone Association board of directors for 14 years, died on Jan. 19. His death resulted from complications following an operation a short time before.

Mr. Black had a long and varied career in all phases of the telephone business. He became associated with the industry in 1904 as night operator and maintenance man for the old Conoquenessing (Pa.) Telephone Co., which he served until 1909. For the next 10 years he gained a wide experience in inside and outside plant engineering and design with the Vandergrift (Pa.) Telephone Co.; the old Central District Telephone Co., Peoples Telephone Corp., Butler; the Bell Telephone Co. of Pennsylvania and the Chesapeake & Potomac Telephone Co., serving the latter two as assistant engineer.

From 1919 to 1925, Mr. Black was manager of plant and traffic for the Peoples Telephone Corp. From October, 1925, to May, 1947, he was general manager of the company. He also served it as secretary and assistant treasurer.

A. O. BLACK

During these years, Mr. Black gained a wide knowledge of all departments—plant, including cost studies for rate making purposes and dial conversion studies; traffic; commercial and executive and general administrative.

In June of 1948, Mr. Black announced the opening of a management, accounting and engineering consulting service for Independent operating telephone companies, after serving as consultant to several companies for a year.

He was also associated with one of his sons in a manufacturing enterprise engaged in producing electro-magnets for the armed services.

He, furthermore, was a member of the Independent Telephone Pioneers Assoc.

He is survived by his widow, Mrs. Effie L. Black, and two grown sons and daughters.

V V

Canadian Bell Anticipates Earning 1951 Dividend

Frederick Johnson, president of the Bell Telephone Co. of Canada, says the company's financial position is improved as a result of the recent rate increases and it is pushing ahead with a record-breaking construction program to provide more telephones.

In a year-end statement, Mr. Johnson noted that the Board of Transport Commissioners for Canada had approved "substantially all of the increases requested" to bring telephone rates in line with higher costs of labor and materials.

It was the company's first appeal since 1927 for higher basic rates and during the last two years net income was insufficient to meet dividends fully, thus causing a serious drain on surplus, he said. However, the increases should enable the company to earn its normal dividend this year.

To meet the public's continued heavy demand for telephones, Mr. Johnson said that more than 130,000 telephones were added during 1950. This brought the number of telephones in service to 1,726,000—an increase of 700,000 since the war and more than double the number in service only 10 years ago.

Local calls in Ontario and Quebec averaged about 11,000,000 a day, compared with about 6,200,000 a day 10 years ago.

Expenditures for new construction totalled $67,500,000 during 1950. In all, 50 building projects were underway. Equipment was replaced and manual telephones were converted to dial to provide improved service, new exchanges were added and others enlarged in an effort to reduce the backlog of demands for telephones.

V V

"Dollars will be steadily cheaper and buy less as wages and prices continue their rise, despite theoretical controls." —Berea (Ohio) Enterprise.

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THIS combination ladder and all-purpose service body unit can be mounted on 1/2 and 3/4 and 1 ton trucks — a mobile, aerial service unit with a wide range of usefulness.

Extension ladder available in 24 ft., 28 ft., 32 ft. and 36 ft. lengths. Provides aerial equipment with no mechanical devices subject to breakdown or requiring maintenance attention. One-man operated — ladder easily extended or lowered and closed. Ladder is mounted clear of body floor. Service body offers safe, weatherproof storage compartments for tools and materials — available in 74 inch, 84 inch, and 94 inch lengths. Send for complete information on the Eagle Aerial Service Unit.

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OBITUARIES

WILLIAM B. WOODBURY II, Diamond Point, N. Y., former official of the New York Telephone Co., died on Jan. 18 after a long illness. He was 74 years old.

A native of Columbus, Ohio, Mr. Woodbury had been chairman of the Franklin County (Ohio) Republican Committee. In 1900, he was the youngest presidential elector in the United States. He was chairman of the New York State Republicans' Constitution Day Committee in 1938 and was a former chairman of the Republican Congressional Committee of the 29th New York District.

From 1910 until his retirement in 1934, he was associated with the Bell System as assistant to the president of the New York Telephone Co. He was president of several subsidiary companies.

Surviving are two daughters, Mrs. J. Davidson Stephen, New York, and Mrs. Alfred Silvan, Scarsdale, N. Y.; a son, Cyrus H. Woodbury, Diamond Point; a brother, Chester Woodbury of Brooklyn; a sister, Miss Margaret Woodbury, Pittsburgh, and six grandchildren.

• • •

JONATHAN GRANT KIRMAN, 82, one-time owner of the Exeter (Calif.) Telephone Co., died on Jan. 12 after a brief illness.

• • •

E. M. MORSMAN, 75, for a number of years general counsel for the Nebraska Telephone Co. and its successor, the Northwestern Bell Telephone Co., died Jan. 20 at his Omaha home. Mr. Morsman was one of the top ranking lawyers of the midwest and was a director in two Omaha banks and the Omaha building and Loan Association.

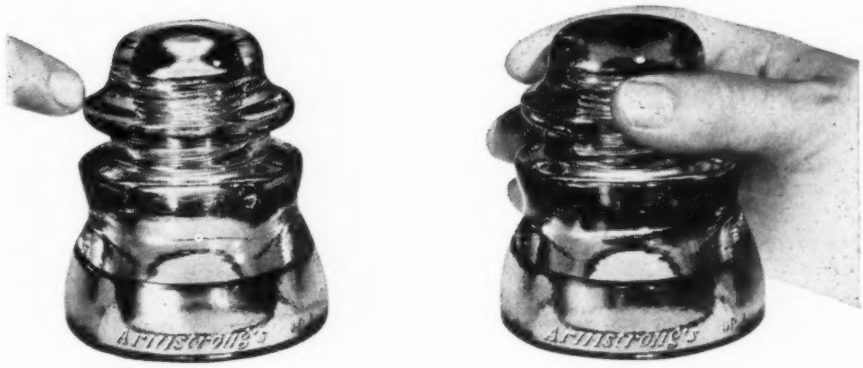
V V

Table Rock, Neb., New Manager

George E. Eggleston has been named by the Lincoln Telephone & Telegraph Co., as manager at Table Rock, with supervision of service at Pawnee City, Burchard and Table Rock. He succeeds Dan W. Smith, transferred to York as wire chief. Mr. Eggleston has been with the company since 1942, with time out for limited military service. He had served at the Lincoln, Beatrice and Auburn exchanges.

V V

The waiting time to have a telephone installed now is up to three years in most parts of Northern Ireland.



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Overhead and Underground Utility Equipment

German Post Office Engineers Visit Automatic Electric

Automatic Electric Co., Chicago, recently was host to five officials of the German post office who are spending three months in this country studying United States telecommunication organization and techniques under the sponsorship of the State Department. Automatic Electric was selected by U. S. Government authorities to cooperate in supplying information as to modern telephone systems and practices to visiting overseas teams under the ECA's technical assistance program.

The five members of the group are: Friedrich Sauerlandt, chief of the mechanical engineering section, Ministry of Posts and Telecommunications, Frankfurt; Karl Wilhelm Riehl, acting chief, Directorate for Posts and Telecommunications of Northern Baden, Karlsruhe; Ernst Neidl, chief of telephone and telegraph exchanges and repeater stations for the Augsburg area, Augsburg; Kurt Westphal, chief of the Telegraph Service and chief of the Allied Telegraph Center in Berlin; Ewald Klobach, accountant and auditor, Ministry of Posts and Telecommunications, Frankfurt.

These officials spent several days in discussions with technical and production staff members of the Automatic Electric organization. Their program also included visits to the automatic exchange of the Illinois Telephone Co., at Bloomington, Ill., and those of the De Kalb-Ogle Telephone Co., Sycamore, Ill.

In addition, through the cooperation of S. H. Biery, local manager of the Middle States Telephone Co., an opportunity was afforded them of visiting that company's exchanges at Park Ridge and Des Plaines, Ill., which were converted in 1950 to Strowger automatic operation, with facilities for automatic ticketing of toll calls to exchanges of the Illinois Bell Telephone Co. in the Chicago metropolitan area. The visitors showed warm interest in examining the automatic toll ticketing equipment, the functioning of the director, and the facilities provided for interconnection between the Strowger automatic equipment and the crossbar and panel equipment of the connecting Bell exchanges.

The group has covered a considerable field of American telephone activity, having spent some weeks with the Federal Communications Commission in Washington and having visited other large and important communications organizations.

Shown here is the group of visiting officials of the German Post Office being treated to a demonstration of automatic toll ticketing equipment at Park Ridge, Ill. Left to right: J. E. OSTLINE, project engineer, Automatic Electric Co.; KURT WESTPHAL, chief of the Telegraph Service and chief of the Allied Telegraph Center in Berlin; KARL WILHELM RIEHL, acting chief, Directorate of Posts and Telecommunications of Northern Baden, Karlsruhe; ERNST NEIDL, chief of telephone and telegraph exchanges and repeater stations for the Augsburg area, Augsburg; FRIEDRICH SAUERLANDT, chief of the mechanical engineering section, Ministry of Posts and Telecommunications, Frankfurt; EWALD KLOBACH, accountant and auditor, Ministry of Posts and Telecommunications, Frankfurt, and S. H. BIERY, manager of the Middle States Telephone Co. for Park Ridge and Des Plaines.

V V

"We must stop business as usual, strikes as usual, and politics as usual. The government must let us know soon what is still ahead on taxation. Non-defense spending must be cut to the bone. Without increasing the national debt unduly, this means forgetting 'politics as usual' and really doing a job on the nonessentials. As yet, we have heard no official statement from Washington even promising cuts in non-defense spending."—Brehon Somervell.

V V

"We are told what fine things would happen if every one of us would go and do something for the welfare of somebody else; but why not contemplate also the immense gain which would ensue if everybody would do something for himself?"—William Graham Sumner in 1889.

Ray Blain, TELEPHONY's technical editor, wrote in his Plant Man's note book, TELEPHONY May 21 issue: "The maintenance of accurate service records of individual drop wire installations in the average exchange proves a most difficult task.

This difficulty has been largely overcome by the design of DATED DROP WIRE that is now being sold by at least one manufacturer.

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Haertel Adds New Dehumidifier to Line

The Walter Haertel Co., Minneapolis, Minn., manufacturers of specialized industrial dehumidifiers, have announced a new junior commercial and industrial Haertel Dehumidifier "50" (see cut).

Powered with a one-half horse power hermetically sealed "Freon" condensing

unit, this new addition to the Haertel line has a maximum 24-hour capacity of 50 pounds of water removal from the air, the company states.

Because of several improvements in design, the Haertel Dehumidifier "50" will remove one gallon of water from the air in storerooms or other closed spaces in from four to five hours, under average temperature and relative humidity conditions, it is said.

"Goodbye Wally, and thanks a billion!"

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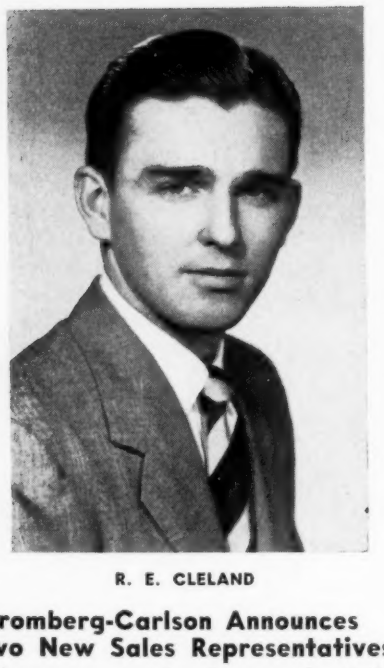


R. E. CLELAND

L. I. CONNERS

Stromberg-Carlson Announces Two New Sales Representatives

Announcement has been made of the appointment of two sales representatives, Robert E. Cleland and Lloyd I. Conners, who will serve the telephone division of the Stromberg-Carlson Co., according to Arthur F. Gibson, divisional general manager. Mr. Cleland will represent the company in western Ohio and Mr. Conners in Nebraska, north Kansas, Wyoming and Colorado.

Mr. Cleland has been with Stromberg-Carlson since 1940, working as an installer and recently as an installation foreman. As sales representative in Ohio he will cover the territory formerly handled by Walter E. Carlson, whose resignation from the company because of ill health was also announced.

Mr. Cleland was born in Muskogee, Okla. During World War II he served in the army for three years.

Mr. Conners, who began service with the company in 1935, is a native of East Rochester, N. Y., and attended Rochester Institute of Technology, taking courses in mechanical engineering. Mr. Conners takes over the territory formerly covered by Kenneth J. Johnson. Mr. Johnson has been transferred to the area formerly handled by William E. Lyon, who resigned from the company last year.

Mr. Conners has worked in the production engineering, apparatus engineering and installation departments of the company. During World War II he served in the European Theatre for two and a half years with the 103rd Infantry.

V V

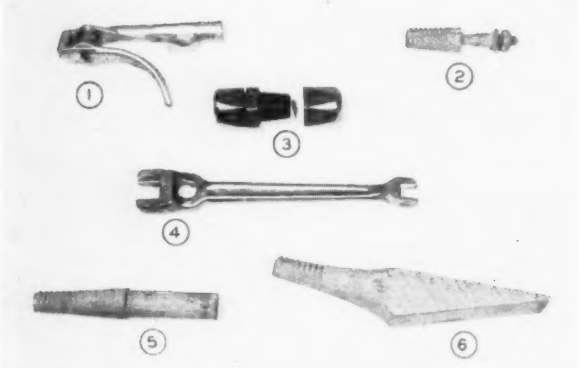
Toronto Sales, Service Office

A Canadian sales and service office has been established by the Telephone Manufacturing Co., Ltd., London, England, in the new Saxony Bldg., Duncan St., Toronto. Official opening is scheduled for February.

V V

The average Chicago family made 1,425 calls in 1950 and answered about the same number, according to the Illinois Bell Telephone Co. The average family got only 1.4 wrong numbers in the year.

WE HAVE.....



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		3/8"	.65 ea.
		1/2"	.95 ea.
#4	Lineman's Wrench		1.50 ea.
#5	Locust Pins, 1 1/4"x8"		55.00 M
#6	Oak Brackets, 2"x2 3/8"x12"		85.00 M

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Cullom & Ghertner Co. Moves To New Nashville Quarters

In accordance with an expansion program formulated in 1945, the main plant of Cullom & Ghertner Co. is now settled in its new, streamlined, one-floor quarters at 600 21st Ave., No., Nashville, Tenn., occupying 60,000 sq. ft. with its own railroad siding.

The plant is one of the largest and most modern for the production of telephone, public utility and commercial printing and lithographing. A standard line of telephone forms is carried in stock for immediate shipment. Operating three shifts daily, the move completes a modernization program which involved, in addition to new one-floor quarters, the installation of much additional automatic printing equipment, both letterpress and offset, according to the company.

The company's branch plant in Atlanta, Ga., under the same program, also moved to new one-floor quarters at 700 Lake Ave., N. E.

In line with this program, due to additional responsibilities assumed, A. W. Lyell was recently elected assistant vice president in charge of production at the Nashville plant; W. M. Robinson, assistant vice president in charge of production at the Atlanta plant and R. T. Vaughn, secretary.

Other officials of the company are A. S. Ghertner, president; E. V. Williams, executive vice president and treasurer; G. H. Ghertner, vice president and general manager of the Atlanta plant; L. C. Ghertner, vice president, and J. J. Medaries, service manager.

V V

Templeton, Kenly Has Pole Pulling Jack

The new Templeton, Kenly pole pulling and straightening jack of either the aluminum or malleable types is now described in the company's Bulletin UA-50.

Though the jack weighs only 60 pounds, it is rated at 15 tons capacity and has a 22 in. lift. The company claims that the aluminum housing eliminates 35 pounds of weight without sacrificing a pound of lifting capacity, thus facilitating moving from job to job and saving time and work.

Being equipped with an "I" beam base gives the jack a firm foundation. The user can pull or straighten poles, pull butts, or move loaded poles without interruption to service and without digging. Its construction allows the jack to pivot on its base when the pawl is disengaged. In addition, complete equipment includes steel chain and lever bar, the company states.

Copies of bulletin UA-50 may be secured from Templeton, Kenly & Co., 1046 S. Central Ave., Chicago 44, Ill.

V V

"Want to bail your governmental system out of the red? Okay, fork over $1,865."—Schuylkill (Pa.) Herald.

Illinois Bell Telephone News

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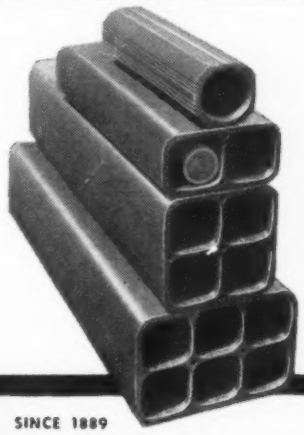

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1,610 feet 51-pair (102 conductor) No. 22 Solid Performance and Lead Steel Taped Underground Cable. Brand new. On one reel. If interested will furnish complete specifications. Write: Mill Power Supply Co., Box 1339, Charlotte, N. C.

175 TELEPHONES with 4 and 5-bar generators in A-1 condition; also 1-position Kellogg switchboard and ringing equipment. Write Lincoln County Telephone Co., Monticello, Minn.

935 station Magneto-Common Battery exchange located in Midwest dairy country, County Seat town, out of heavy sleet area. 1950 gross revenue $30,577. Rate increase due. Priced for quick sale. Write Box No. 3000, c/o TELEPHONY.

FOR SALE OR TRADE—Controlling stock in Magneto exchange northwest Missouri. 383 stations. Gross approximately $14,000. Rural plant newly rebuilt. Details on request. Write Box No. 2999, c/o TELEPHONY.

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W.E. Main Frame Terminal Blocks Nos. 35, 85, 65, 100A, 101A. Reconditioned.....$3.00

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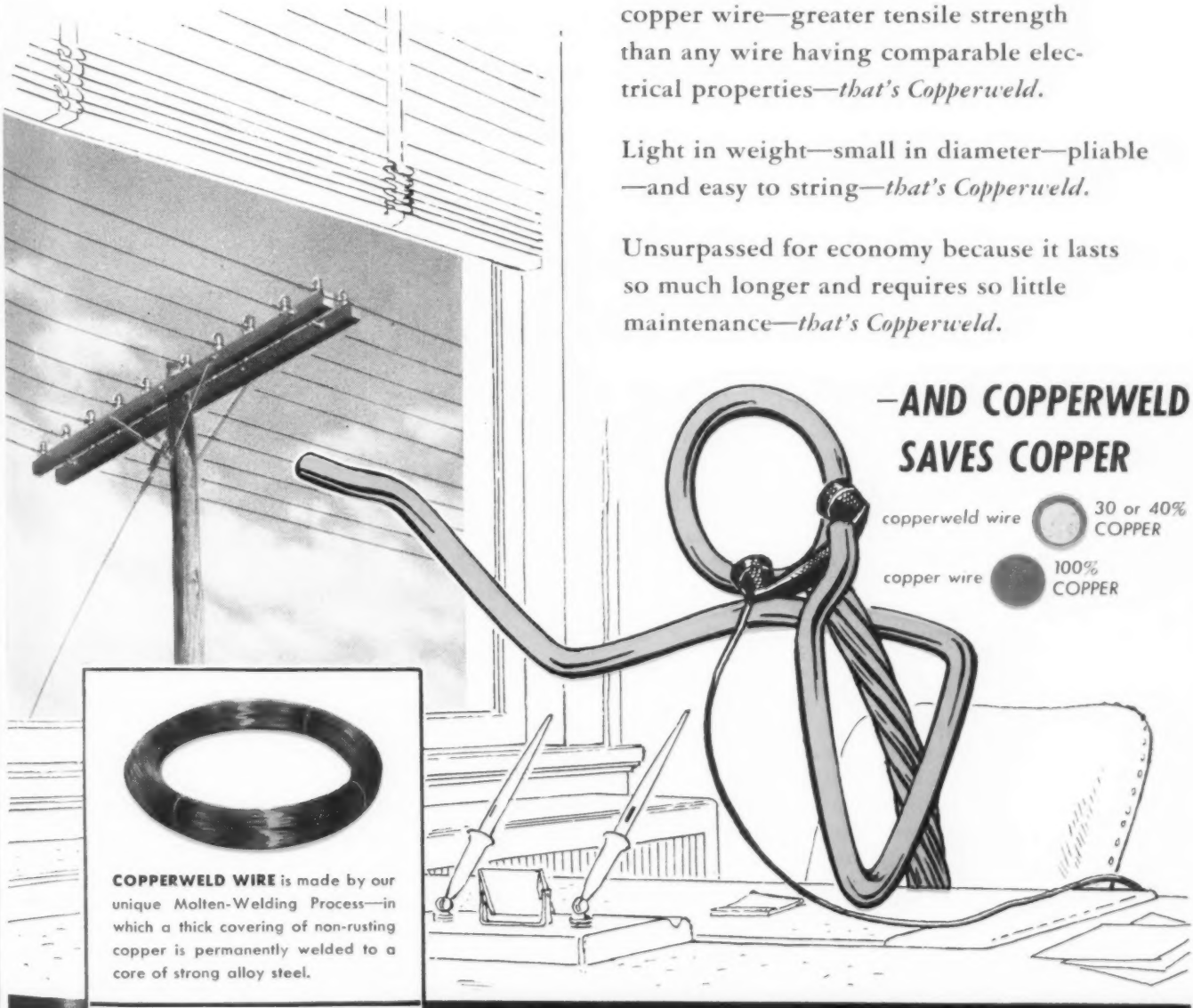

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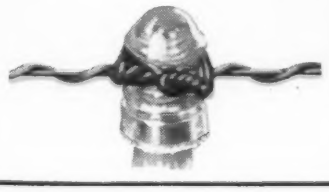

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